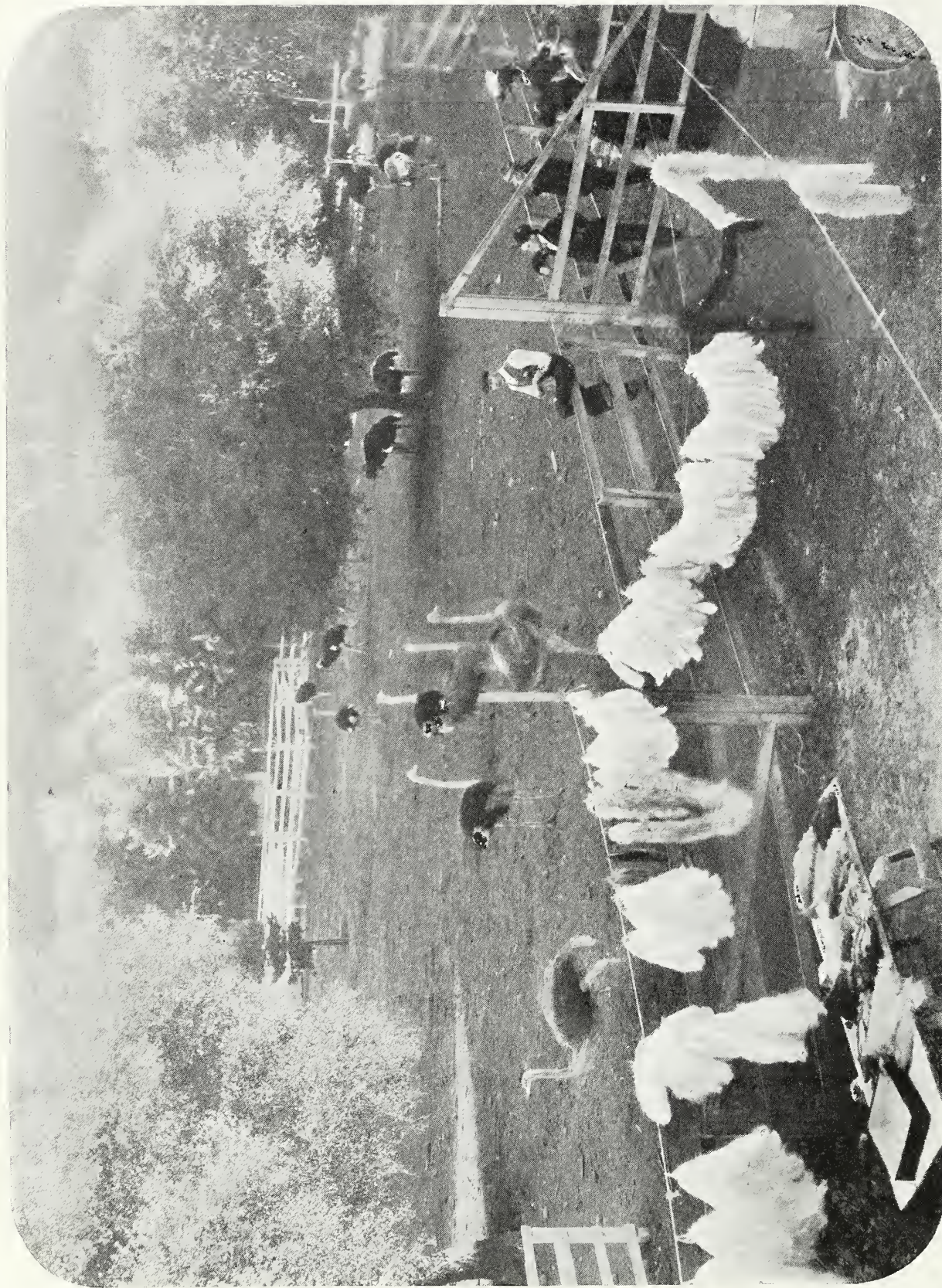


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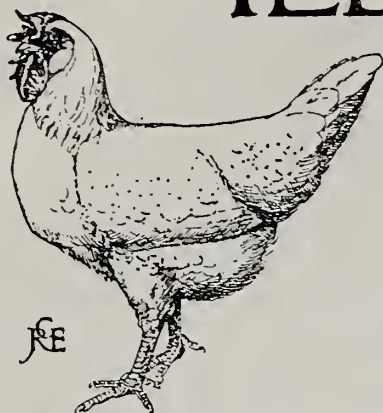
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ON AN AMERICAN OSTRICH FARM.

PLUMES DRYING IN THE SUN.

[See Pages 270 and 271.]

THE ILLUSTRATED POULTRY RECORD



VOL. III.—No. 6.

March 1, 1911.

Monthly Sixpence Net.

DIARY OF THE MONTH.

EDITORIAL NOTICES.

Telegrams : "VIVACIDAD." Telephone : CITY, 2083.
ENTERED AT STATIONERS' HALL.

The Editor will be glad to consider any MSS., photographs, or sketches submitted to him, but they should be accompanied by stamped addressed envelopes for return if unsuitable. In case of loss or injury he cannot hold himself responsible for MSS., photographs, or sketches, and publication in the ILLUSTRATED POULTRY RECORD can alone be taken as evidence of acceptance. The name and address of the owner should be placed on the back of all pictures and MSS. All rights of reproduction and translation are reserved.

The Editor will be glad to hear from readers on any Poultry Topics, and all Queries addressed to the paper will be answered by experts in the several departments. The desire is to help those who are in difficulty regarding the management of their poultry, and accordingly no charge for answering such queries is made.

The Annual Subscription to the ILLUSTRATED POULTRY RECORD at home and abroad is 8s., including postage, except to Canada, in which case it is 7s. Cheques and P.O.O.'s should be made payable to the ILLUSTRATED POULTRY RECORD.

The ILLUSTRATED POULTRY RECORD is published on the first of every month. Should readers experience any difficulty in securing their copies promptly they are requested to communicate immediately with the Editor. The latest date for receiving advertisements is the 20th of the month preceding date of issue.

The utmost care is exercised to exclude all advertisements of a doubtful character. If any reader has substantial grounds for complaint against an advertiser he is requested to communicate at once with the Editor.

The Turin Exhibition.

As previously mentioned, there is to be a great international poultry show held in connection with the Turin Exhibition on May 4 to 7 next, the schedule for which has been issued, and, as usual, it is most complete, although the prizes offered are small compared with those customary in this country. It is not, however, so much a question of money prizes as of extending the direct trade in live stock with foreign countries, for which there is a constantly increasing demand, and one capable of vast extension. The Italians are very keen to secure a large display of British exhibits, as poultry-breeding is extending very rapidly in that country. Unfortunately the hopes formed that the Royal Commission for Foreign Exhibitions would have made arrangements similar to those adopted by foreign Governments have not been realised, which is a great mistake. Until that can be done it is useless to expect that our breeders will regard the Commission as of any use to them, or feel justified in sending to shows in other countries. We had hoped when this Commission was appointed that a new era had dawned, but, so far as poultry is concerned, it is not so. The small sum of money needed for this purpose is not forthcoming. It is being expended in other ways, some of which are of less value to the nation at large. That, however, is no new story. Perhaps when the Report of the Departmental Committee on Trade in Live Stock appears it may lead to an alteration. At present the condition of affairs is most unsatisfactory.

Canada and the United States.

So far as British poultry-keepers are concerned, a few years ago the proposed reciprocal

convention between Canada and the United States might have had some influence. At that time, after the Dingley Tariff Act, imposing a heavy tax on Canadian eggs and chickens, was passed, Colonial exporters set themselves to cater for our markets, and with a fair amount of success. In 1897 the total number of eggs imported into the United Kingdom from Canada was upwards of 68,000,000, in value £193,998, which was the high water mark. Since that time there has been a steady decline, and now the trade is practically extinct, as last year the total received was only £1,097 in value. The Tariff already referred to has practically prevented exports to the States, and the explanation of this decrease in exports to England is to be found in the enormous increase of consumption in Canada itself, which now does no more than provide for its own requirements. But if the barriers are thrown down poultry-keepers in the Dominion will have great markets open to them, so that the opportunities for development of their industry will be greater than ever before, which assuredly will lead to a great extension in all parts of Canada, east and west. The combination of cheap food and good prices is favourable in the extreme. Reports have been published of successes achieved by men and women alike. At the present time there is a Commission over here with a view of securing five thousand female emigrants, who are promised, if they want them, husbands and good homes. Apart from the matrimonial side of the question, it would be an excellent arrangement if those who go out knew how to care for poultry, as that is one of the best and most profitable branches they can take up.

What the Board of Education Suggests.

A certain amount of trepidation was felt on the part of many concerned in rural industries when the direction of Agricultural Education, except as to colleges and farm schools, was handed over to the Board of Education, which body, it was feared, would not be able, with all its other work, to do justice to this branch of national production. But the recently-published "Memorandum on the Principles and Methods of Rural Education," by Sir Robert Morant, K.C.B., Secretary of the Board of Education, goes far to dispel, so far as that body is concerned, any fears we may have had. And as the Board has the power of the purse, County Councils will not be permitted to continue as in the past, for we assume that money for schemes will not be granted until these are approved. If that be so this interesting Memorandum will

lead to a new era in so far as poultry instruction is concerned. It is gratifying to see throughout the forty-eight pages of Sir Robert Morant's Memorandum that the place of poultry-keeping is recognised, and proposals made which, if wisely and thoroughly carried out, cannot fail to alter the whole aspect of affairs, and to remove the stigma of neglect which, over the greater part of England and Wales, has rested upon those responsible for rural economic education. The need for a drastic revision of present methods in all branches is abundantly evident in these pages, not the least in the appendices wherein is recorded what is and what is not done. It is here shown that so far as farm schools and short courses at colleges in lieu thereof are concerned, only six centres are available for instruction in the two countries. When these facts and those embodied in "Statistician's" article in the present issue are placed together, it is at once evident how far we have come short of what should be. On another page we summarise Sir Robert Morant's suggestions as to poultry, which subject, however, enters into so many general recommendations that it is impossible to do it full justice. As we have in the POULTRY RECORD urged the importance of this question repeatedly, it is a satisfaction to know that our efforts are bearing fruit.

Another Scottish Report.

Following upon the Report of the Poultry Committee, published two years ago, the Secretary of State for Scotland appointed a Departmental Committee to inquire and report upon the work of the Congested Districts (Scotland) Commissioners for the improvement of Live Stock and Agriculture, with special reference to the quality of the stock reared upon the Crofters' Holdings, and its report has just been published. In view of the exhaustive consideration of the poultry question by the former committee, to cover the same ground was unnecessary, and, therefore, the references are comparatively few, though the place of poultry is recognised. In respect to education it is recorded: "We are strongly of opinion that the system adopted in the past of distributing among the crofters seeds, eggs, &c., without at the same time giving them advice and practical instruction as to how these can best be used, is of little educational value, and therefore can effect but a small and temporary amelioration in the condition of the recipients. Permanent improvement, we believe, can only be secured by accompanying such distribution with personal instruction, and this work should be carried on systematically year after year."

Breeding Centres.

A further important point is also brought forward as to the breeding centres now being established in congested areas, in order to secure unity of action, and prevent duplication of effort. The report says: "The Board are engaged this year in forming local depots of pure-bred poultry in various districts, for the purpose of supplying sittings of eggs and cockerels and pullets on favourable terms, under the superintendence of a poultry expert. The Aberdeen and Glasgow Agricultural Colleges are also beginning to work on similar lines, and we suggest that this scheme should also be administered by the college authorities who have poultry instructors in these areas, and who would, along with their educational work, supervise the distribution of eggs and also the general working of the egg-distributing centres. . . . We believe that this work cannot be carried out efficiently by two bodies, one doing the practical and the other the educational work. Both branches of this work should, we consider, be under the supervision of the same authority."

An Invitation from Maine.

In our issue of October last (Vol. III., p. 34) a brief account was given of the third annual meeting of the International Association of Instructors and Investigators in Poultry Husbandry, held at Ames, Iowa, in July and August last. The next gathering is fixed to take place at Orono, Maine, in the forthcoming July, than which there could be no more suitable *locale* in America. The Maine Experimental Station has been one of the leaders in poultry experimental work, and probably has devoted more attention to this subject than any other college in America. Its reports are of the greatest value, more especially since this branch of the work was undertaken by Drs. Raymond Pearl and F. M. Surface, whose renown is becoming world wide. Hence the meeting referred to is certain to be well attended. We understand that it is intended to issue invitations to poultry teachers and experimentalists in this and other countries, and probably by the time these lines appear these will have been received, with the view of making the Orono gathering truly international. It may be hoped that there will be an adequate response, and that a number of those engaged in this work will be present. A trip across the Atlantic is expensive, but we cannot conceive that any college or County Council could better expend money than in enabling their poultry experts to see what is being done in Canada and the United States, and thus equipping them for the great extension which must take place in the immediate future.

The Northern Laying Competition.

With commendable promptitude the Northern Utility Poultry Society have issued their full report of the four months' laying competition, which has been held at Mr. C. G. Skipper's farm, Burnley. The fourth month showed a considerable falling-off in the number of eggs produced, only 819 eggs being laid against 1,218 during the preceding four weeks. The final stages of the competition proved extremely interesting, for there was practically nothing to choose between the four leading pens, and it seems probable that had the contest lasted a little longer the order would have been reversed. During the sixteen weeks the competition has been proceeding the weather has been very trying, on the whole, and taking into account the fact that Mr. Skipper's farm consists of a heavy clay subsoil, with only a few inches of soil, the results are excellent, and we think those responsible for the contest are to be heartily congratulated. Trap-nests have been used all the time, and every egg has been weighed. Eggs weighing less than $1\frac{3}{4}$ oz. received four points, those more than $1\frac{3}{4}$ oz. but under 2oz. five points, and those over 2oz. six points.

The Triumph of the White Wyandotte.

The first five pens are all White Wyandottes—a remarkable testimony to the value of this variety as a winter layer. The winning pen, belonging to Mr. W. Barron, produced 252 eggs in the sixteen weeks, being awarded 1,480 points; the second pen, belonging to Mr. H. S. Cooper, laid 241, and gained 1,439 points; while the third pen, the property of Mr. James Burrell, produced 244 eggs, three more than the second pen, but gained only 1,420 points. Buff Orpingtons did not do nearly so well, but the manager reports that this was due to the fact that they were all too forward to do justice to themselves, 76 eggs being laid by hens of this variety before the competition commenced. The pen of Anconas, which were placed sixteenth, were too young to do well, although they have the distinction of being the best pen of a non-sitting variety, the three pens of White Leghorns being placed seventeenth, twenty-first, and twenty-second.

Attention is drawn to the fact that the next number of "The Illustrated Poultry Record," published on April 1, will be a special **EXPORT NUMBER**, and will contain much valuable information concerning the needs of foreign buyers, the best methods of exporting fowls, &c.

THE BRAHMA FOWL.

By L. C. R. NORRIS-ELYE.

WHEN the Editor wrote to ask me to write an article on the breed I have so long worked at and studied, I began to wonder what I could say that had not been said over and over again by myself and others. His words, "treated historically, giving both the ancient and modern type," seemed to indicate a point of interest, especially to newer breeders who never saw the earlier birds, and can therefore hardly realise how the type has been changed and the modern Brahma evolved.

My first acquaintance with Brahmas was in the 'fifties, when my father bought a breeding-pen from the Hon. Miss Douglas-Pennant. His first season was unlucky, as he got no chickens.

But they were active, upstanding birds, healthy, good layers, and generally useful. I have before me a coloured print of a pair of Brahmas in Martin Doyle's "Illustrated Book of Domestic Poultry," a book which belonged to my father, and was published in 1854 by Messrs. Routledge. They represent, however, one pair sent over by one person, Dr. Bennett, and those only Lights, rather than the type of Darks or Greys, which must have existed in India at a much earlier date. In the "Illustrated Book of Poultry" Mr. Lewis Wright mentions a letter published by a clergyman in May, 1856, in which he says "a relation of mine was looking at my fowls last summer,



A PAIR OF THE ORIGINAL BRAHMAS IMPORTED INTO ENGLAND IN THE MIDDLE OF LAST CENTURY.

From a coloured print in Martin Doyle's "Illustrated Book of Domestic Poultry."

Published by courtesy of Messrs. Geo. Routledge and Co.

This shows that even in that early stage of the race infertility was a difficulty, caused then, as now, in my opinion, rather by clumsiness than by actual want of vigour. These birds were longer in the leg than most modern Brahmas, and were certainly very lightly feathered compared with the modern birds. Indeed, when I visited Mr. Lewis Wright's yard about 1874, most of the birds were still what a modern breeder would call "very short of feather."

and on my telling him that Brahmas were considered by many only a variety of Cochins, he remarked, 'I remember them when I first went to India *more than forty years since* [that is, before 1816], long before Cochins were heard of here; but they were considered a great rarity.' Moreover, some years ago some friends brought over an old Indian officer for the afternoon, and on his seeing my Dark Brahmas he told me that he had seen them

years before in certain parts of India (I think he said mostly up country and in the hills), and that he could see but little difference in mine from those he had seen there, except that mine were more heavily feathered and more distinctly marked. I think this is proof that, whatever may have been the real origin of Brahmas, they were an old breed, existing long before the 'fifties or the period of the "Cochin mania," and in general appearance were much like the modern birds.

The fact that years ago Brahmas bred true argues a much older established breed than any which had been lately manufactured by various crosses in America or elsewhere. Mine, at any rate, bred so true that some fifteen years ago Mr. Martin Longe, when visiting my yard, remarked that they were so fixed and alike in type that they seemed all bred from the same parents. And this at a time when I had as many of the pullet strain as of the cock strain! I have heard and read much of the controversy as to the origin of these grand fowls, and am convinced that, whatever else may be held proved or disproved, there can be no reasonable doubt that they were an old and well-established breed long before any specimens, whether pure or crossed, came into the hands of English or American fanciers. When I first attended the great poultry shows, I gave earnest attention to the study of the types shown by the best breeders, questioning them individually on "why" and "wherefore." What I found was much as follows: Among the cocks and cockerels in style, head, brilliancy of colour and true Brahma type, I found Mr. Lingwood's strain quite unapproachable, and in size they were also far ahead. In one year, I think 1874, in a tremendously strong class of cockerels, such as we have not seen for many years, perhaps never since that year, Mr. Lingwood bred six out of the eight winners, the remaining two being bred by Miss Douglas-Pennant from a bird sold to her the previous year by Mr. Lingwood, which bird the breeder himself described to me then—"he was not a very good one." But such was the value of his blood that he bred the only two cockerels which, apart from Mr. Lingwood's own, could get into the first eight, Mr. Hewitt being the judge. Now, there was a curious fact about those birds. Mr. Ansdell, who gave prices for good Brahmas which must make modern breeders sigh, had offered Mr. Lingwood £100 for his best cockerel (here placed sixth), but the offer was refused, as the owner knew it was the best he had ever bred, and Mr. Ansdell had to be content with two at £40 each, which won cup and, I think, fourth for him! Mr. Hewitt put the sixth prize down for a supposed

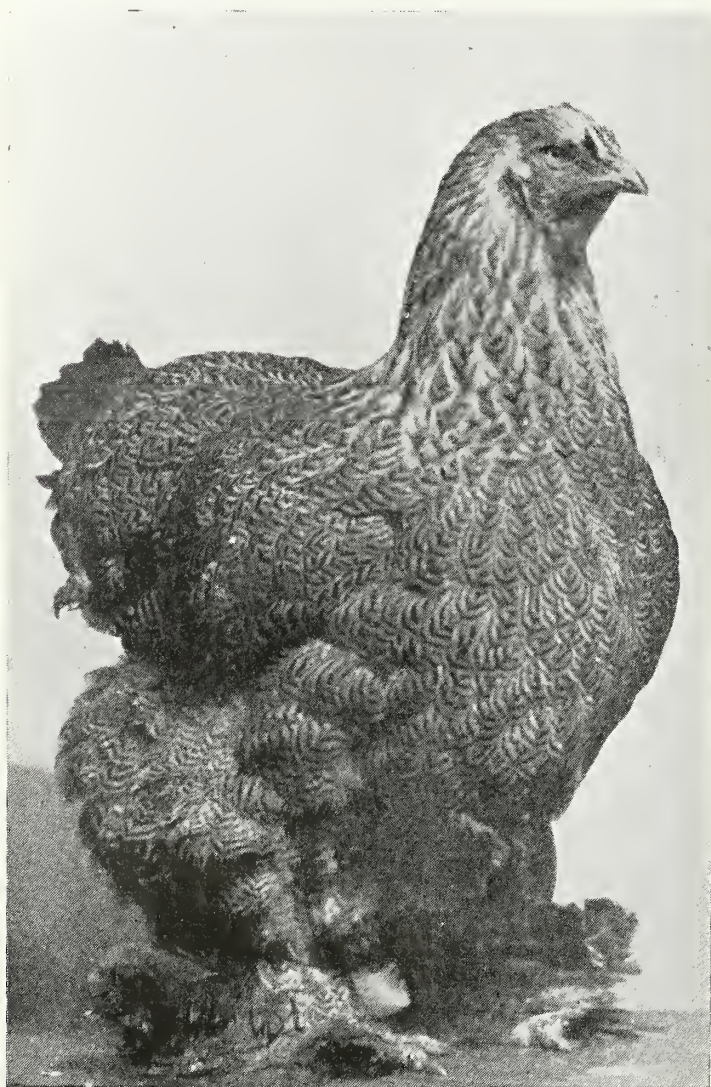
slipped wing, but when put right he carried it perfectly for the rest of the show. This sixth prize bird I carefully studied, and on it I formed my ideal. To this day I consider him to have been certainly one of the very best ever seen, and I only remember some three others which could fairly be compared with him, one being another bird of Mr. Lingwood's, which he afterwards sold to Sir Henry Thompson for £63, known to his breeder and myself as "the bird with the tumour on his breast," which I picked out of forty before I got through the gate of the run in which he was, so clearly did he stand ahead of the rest. He absorbed his tumour and was a perfectly healthy bird. Such birds, as both Mr. Lingwood and the late F. Wragg Lady Gwydyr's manager told me, are "never sick or sorry," and generally make extra fine birds. At that time there was another strain generally known as Lady Gwydyr's, and also shown by my old friend the Rev. the Hon. A. Baillie-Hamilton, of which the celebrated, but no doubt overrated, "Sultan" was the best known example, shorter in leg, very broad, more Cochiny in type, and distinctly failing in top colour as a rule, though very black in breast and fluff. They also had a tendency to brown on wing. Between the two types there was no comparison in my mind, and I remember a *cockerel* of the latter strain so short in leg (in prize list at Dairy Show) that he already looked deformed, and as a cock must have presented an extraordinary appearance. Such were the two leading cock strains in those days; and Mr. Lewis Wright also showed some good ones, midway in character between the two types I have described. Mrs. Hunt also showed some fine cocks and hens at this time, many of which had the curious "ash mark" on the leg. This, no doubt, came from some large ancestor, as birds so marked were generally large ones.

At that time the long controversy was going on not only as to vulture hocks and leg feather generally, but as to the pure blue-white colour of the upper parts of the cocks and cockerels versus the dingy straw colour so often seen then, derived no doubt from an early Cochin cross, and perpetuated by unskilful breeding. The type and character of the pencilling of the hens and pullets varied greatly, some preferring dark broad bands on a brownish ground, others already seeing the greater beauty of a blue-grey or silver-grey ground colour with many bands of fine narrow pencilling. Even the pattern of the pencilling varied greatly, some preferring angular markings, others a longer, more looped pattern, such as is required to-day.

Mrs. Arkwright's birds generally had fine

angular pencilling, and from her strain, I believe, most of Messrs. Teebay's and Percival's birds were derived, though both the latter went in for the extremely silver ground colour.

Mr. Lewis Wright's strain were in type full of Brahma character, of rather fine, rather looped pencilling, but owing to the effort to breed both sexes good from the same pen the



MR. S. W. THOMAS' CHAMPION BRAHMA HEN,
"LADY WONDERFUL." [Copyright.]

pencilling, as a rule, lacked something of sharpness according to modern ideas. From Mr. Wright's strain was mainly derived that of Messrs. Newnham and Manley, well-known medical men at Wolverhampton, and when I visited their yard, in their most successful days, I was struck by the close resemblance their birds still showed to Mr. Wright's stock, though Mr. Manley had, I believe, introduced a Lingwood cross, and with some success. Curiously enough, at one time the Teebay and Percival birds were generally lacking in feather and size, no doubt lost in the effort to maintain the silver ground colour and exact pattern of pencilling by close breeding.

The Revs. T. C. and J. D. Peake about 1874 were producing very lovely pullets of the silver ground colour and fine looped marking, but also had lost size and feather in the effort. "J. D." also had some of the darker colour, remarkable for their splendid breast pencilling; these being generally of a more angular pattern than the others. But "J. D." made a sad mistake when, to get size and feather, he bought a fine show cock to cross with his pullet strain. I had some eggs from him which came from that pen, and the produce, though fine large birds, were useless as show pullets.

As an instance to the contrary, Mr. Leonard Shuter, at one time a very successful breeder, bought a celebrated Lingwood Cup cock and crossed it with his pullet blood. The first cross may not have been quite a success, but I bought from him a cock so bred from a celebrated cup hen, which was almost a show cock but for brown on shoulder and wing (his blood is still, I fancy, in some show cocks), and this bird bred me some very valuable stock, and when I sold him bred the Palace Cup pullet next year for his new owner. That same year I was rather grieved to find that I had also sold the Palace second pullet in the egg!

Two North Country breeders, the brothers Hargreave, also frequently came to the front with first-class birds, both cocks and hens. Another exhibitor, Mr. J. F. Smith, of Sheffield, was in the front rank, his birds being generally of great size. He abandoned Brahmas to devote himself to St. Bernards, and made a high reputation in that breed.

In addition to Messrs. Newnham and Manley there were two well-known and successful breeders at Wolverhampton, Mr. Meade (who exhibited under his brother-in-law's name of Fryer Bennett) and Mr. Pritchard. Mr. F. S. Clarke was also among the really dangerous breeders of Darks, and had he continued the hobby he would, no doubt, have been in the very first flight. Mr. Lucas also bred some very good cockerels. Sir Henry Thompson, the great surgeon, took them up with much enthusiasm, and his purchase of Mr. Lingwood's Palace Cup cock (among the best ever shown) for £63 will be remembered by many. Had he had time to devote his great talents to the science of breeding he must have gone far; as it was the stock rapidly deteriorated by unskilful mating, and he soon wearied of the amusement and gave up the breed. The names of Messrs. R. B. Wood, T. S. Clarke, R. P. Wheadon, Rev. Joyce, Dr. Holmes, Lorimer, Dr. Earle, R. Holland, Rev. Humberstone, James Long, Butterfield, Davenport-

Jones, A. Ashton, Lord, Foster, and last, but not least, a dear friend of my own, Alexander Comyns, who showed good ones of his own breeding, did much for the breed, and founded the *Feathered World*. Of the older breeders still among us Mr. Lingwood, alas! rarely or never shows, but Messrs. Garner, Thomas, Henshall, Moore, A. E. Ward (the latter like Mr. Garner now more often showing Lights), Tozer, Longe, Southon, are still to the front, and long may they be so!

Dark Brahmas to-day need more breeders: those who take them up rarely abandon them, and if obliged to do so it is generally done with great regret. Though fine hens and pullets are often shown, those who breed the pullet strain must not forget width, Brahma carriage, and good shank in their zeal for colour and pencilling. We have seen too many long, flat backs, narrow across, and with spiky hocks failing in shank feather. A watch must be kept on this, and careful mating will soon put things right.

In Light Brahmas a great improvement is

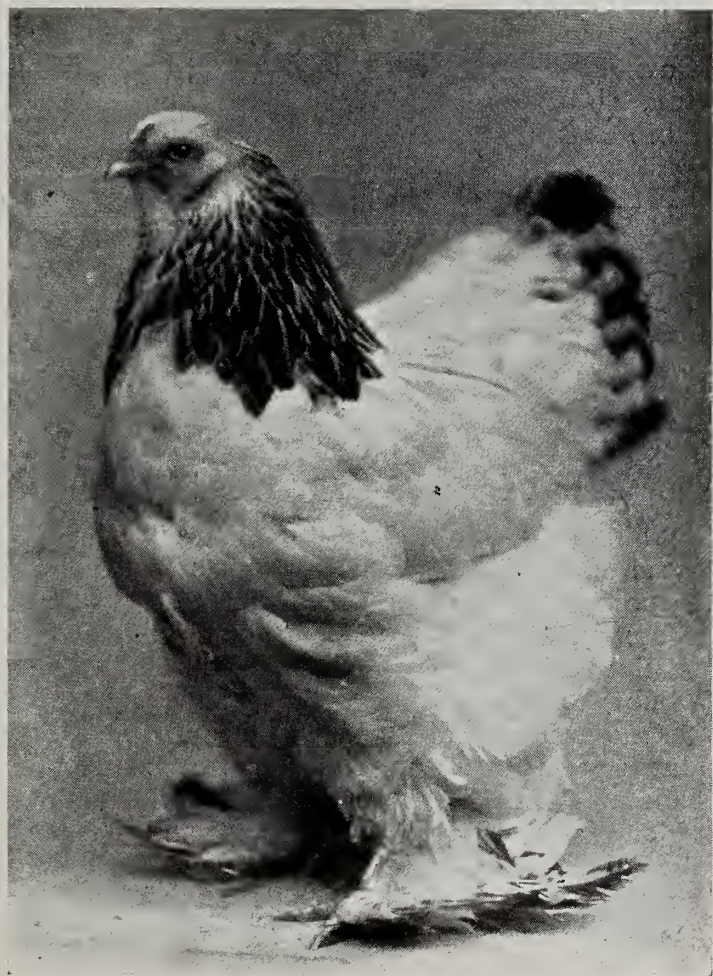
Petter, Potter, and others. But in the writer's opinion the greatest advance in Lights of late years has been made by Mr. T. Longbottom, who can not only see white, but aims at true Brahma style and a fine head. And his successes recently show that the judges also can recognise the merit of such birds when they get them before them. In the old days Messrs. Petter's birds were of the fine type, and from one Petter Cup cockerel at the Palace, bought there by my old friend the Rev. G. H. Morgan for £21, I am glad to say I eventually founded my strain of Lights. Mr. Nettleford succeeded to Mr. Petter's mantle in some degree, though Mr. Anderson, who did his mating for him, could put up with a more Cochiny type than some of us cared for. Though he no longer breeds show Brahmas, Mr. Anderson's is still a welcome face at the Palace Show. Domestic trouble clouded the gladness of himself and Mr. Garner last November, and in both cases much sympathy was shown by their numerous old friends.

Mr. Potter for some years bred some of the best Lights ever shown, though he had no advantages, but bred them mostly in a back-yard. His purity of colour has never been excelled. Mr. Ive has won as many prizes as any Light breeder at the Palace and Birmingham, and his birds have been generally remarkable for their great size.

Mr. G. H. Wood also had a wonderful run of success, though his birds often lacked size, but were very fluffy and Cochiny, which appealed especially to Mr. Leno among the judges of that day.

Mr. Breeze also showed good birds. Mr. A. E. Ward showed many fine Lights, of similar stamp to those of Mr. Wood, and is still showing them with much success. Mr. J. F. Burbidge, of cricket and fox-terrier fame, for some years was also in the first flight, his first year's effort producing a sensational string of pullets. Mr. Lucas has for years bred fine Lights, though his judging often prevented him from showing at the Palace, and of late years he has not given so much time to breeding and mating, and has not, in consequence, been so successful. His birds were of the true Brahma type, of great size, and his cocks and cockerels were especially good. Messrs. Holland, Southon, Sidgwick, Bindoff, Rev. Harold Burton, R. W. Webster, Jeffares, and many others whose names have escaped my memory for the moment; and for a time also Mr. J. Bailey showed Lights of excellent Brahma type and pure colour, and one could wish he had more time to devote to them.

After looking back over past years, it is well also to look forward.



MR. T. LONGBOTTOM'S LIGHT BRAHMA.

A winner of many prizes.

[Copyright

now observable—viz., in head and wattles. The Cochinchina cross had spoilt the heads of hundreds of so-called Light Brahmas, though fine-headed birds were shown by a few such as Messrs.

In Dark cocks we have gained colour and in some degree regained type, though there is still a slight tendency with some to go for a too "Cochiny" type; and excessive feather is no doubt an object with some, which the late Mr. Lewis Wright rightly held tended to weaken the vigour and activity of the breed.

In Dark hens and pullets there is still one hen living, aged some six years, which, when I first judged her at the Palace several years ago, was, I believe, the most perfect Dark hen ever shown: beautiful colour and marking, feather, good size and the true Brahma carriage in perfection. Those who remember her at her best should have a fine standard to breed up to.

The pullets of late, though finely marked, have in many cases failed in width, size, cushion, and upright carriage of tail, and some have failed badly in shank feathering just under the hock, the difficult place. Yet there are good ones about, and Mr. Moore's success at the last Palace Show was, I am certain, grudged by no one. But they still need careful breeding to obtain and keep true Brahma quality without losing the fine colour and pencilling.

In Light cocks and cockerels as a rule

colour is good, heads very moderate, type often too Cochiny, but good neck hackles and clear saddles have been obtained and are now pretty general.

The Light pullets and hens have made a great advance, and among others Messrs. Garner and Longbottom have shown beautiful birds of the correct type, fine heads, colour, and markings.

There is a tendency to regard excessive darkness of hackle as the ideal. The true Brahma hackle should be as dark as possible, and the black as intense and running as far up the feather as possible, provided always (as the lawyers say) that the edge of the feathers should be a clear white; the black should not run all over the sides and end of the feather.

This noble breed has been to a certain extent thrust aside for various manufactured breeds which may be better layers than some Brahmas; but the Lights and the pullet strain of Darks are still good layers. The cock breeders vary, some being splendid layers, others rather poor. But as table-fowls the Dark cock strain is, I believe, unsurpassed by any, and I have had a cockerel on my own table mistaken by a visitor for a turkey!

AGRICULTURAL COLLEGES AND POULTRY INSTRUCTION.

By "STATISTICIAN."

IN the POULTRY RECORD of December last (Vol. III., p. 108) I called attention to the neglect by County Authorities of Poultry-keeping in connection with their respective schemes of rural or technical instruction. The information then given, taken from official returns published by the Board of Agriculture and Fisheries, revealed a very serious condition of affairs all over the country, one demanding immediate and determined action. That, however, is only part of the story. Equally unsatisfactory is the record of Agricultural Colleges in England and Wales. Had it been that the last-named institutions, which are now fairly well distributed throughout the country, were giving adequate attention to poultry, both in the direction of instruction and experimental work, it might have been stated that to some extent there was fairness of treatment. That is not so. The facts recorded below must, therefore, be regarded as additional to County omissions previously noted. Considering the grow-

ing consumption of eggs and poultry and declining foreign supplies, not met with to the same extent in any other branch of agriculture, a reasonable expectation is that every possible effort would have been put forth to increase production, instead of which the reverse is true. Doubtless these Colleges are always in want of money. That is their normal condition. But such money as is available is unfairly expended.

The authority for what is stated below is the annual "Report on the Distribution of Grants for Agricultural Education and Research in the years 1908-09 and 1909-10; with statements as to the several Colleges and Institutions aided" (Cd. 5,388), published recently by the Board of Agriculture and Fisheries. Therefore, the records are official. In this publication statements are given as to seventeen Colleges and Institutions in England and Wales engaged in teaching Agriculture which are aided by grants. There are others,

such as the Royal College of Agriculture, Cirencester, Aspatria Agricultural College, &c., which are either entirely or semi-private, and consequently not eligible for support from public funds. Those thus dealt with divide into three categories, as follows :

I. THE BLACK LIST.

(Institutions in which no poultry instruction is given) :

University College of Wales, Aberystwyth.
University College of North Wales, Bangor.
University of Cambridge.
Armstrong College, Newcastle-on-Tyne.
University College, Reading.

II. PARTIALLY PROVIDED.

(Institutions which have instructors in poultry-keeping, jointly with some other subject) :

Hampshire Farm School, Basing.
Essex County Technical Laboratories, Chelmsford.
Harper-Adams Agricultural College, Newport.
College of Agriculture and Horticulture, Homes Chapel.
Cumberland and Westmoreland Farm School, Penrith.
Agricultural Institute, Ridgmont.
South-Eastern Agricultural College, Wye.

III. THE BETTER GRADE.

(Institutions which have special lecturers in poultry-keeping) :

Harris Institute, Preston (see notes below).
Eastern Counties Dairy Institute, Ipswich.
Leeds University.
Midland Agricultural and Dairy College, Kingston.
Agricultural and Horticultural College, Uckfield.

The poverty of this list is at once apparent. In some instances a certain amount of external lectures in contributory counties is given by members of the college staff, but as these are credited to county work they do not form an integral part of the collegiate teaching, and are not included above. If properly developed, such external lecturing should enable every college without exception to employ a fully-qualified poultry lecturer, in some cases with one or more assistants. Probably the present year may see some improvement, but I can only deal with past periods as reported.

A most important factor in teaching a subject like poultry-keeping is the combination of practical work with theoretical instruction. Seven of the institutions referred to in this report have special grants from the Board of Agriculture for maintenance of a Demonstration and Experimental Farm. So far as recorded, at the following no attention in either direction is paid to poultry, though possibly they keep a few hens :

Institutions with Farms, but no practical poultry teaching :

University College of Wales, Aberystwyth.
University College of North Wales, Bangor.
University of Cambridge.
Armstrong College, Newcastle-on-Tyne.
University College, Reading.

Of the others included in the list, but which have no special farm grant, so far as I can learn, the following do not provide practical instruction in general management of poultry :

Essex County Technical Laboratories, Chelmsford.
Eastern Counties Dairy Institute, Ipswich.

As to some of the others, details are wanting and cannot therefore be given, but in the great majority of cases it is evident the provision is totally inadequate.

It is necessary in dealing with a question of this importance to learn what is the area served by any existing institution, in order that we may compare the work done, where there is any, with the needs and opportunities of the district assumed to be provided for. There is a possibility that in a few cases complete returns have not been made, but these can only be very few. The omissions, if any, are not mine, but those of the Report and the bodies supplying information upon which it is based.

In order to make clear the present position of affairs, the particulars available are given in tabular form arranged according to districts.

From this table we find that vast areas of the country with great populations have no opportunity of sharing in the advantages of advanced and practical instruction in poultry-keeping or in experimental work. But that is not all. So far as this side of the question is concerned, there are other counties unassociated with colleges and institutions, so far as I can learn, contributing nothing thereto. These demand a special list of their own :

*Cornwall.	Middlesex.
Devon.	†Monmouth.
Dorset.	Rutland.
Glamorgan.	†Somerset.
†Gloucester.	†Warwick.
†Hereford.	†Wilts.
Lincoln (except Lindsey).	†Worcester.

Several of these are doing fairly good county work, and, therefore, cannot be black-listed, but until all are linked to some institution their work must suffer. Out of the seventeen colleges, &c., enumerated above, only three are attempting to deal with the subject at all adequately — namely, the Lancashire County Council at Hutton, near Preston, the Midland Dairy Institute at Kingston, and the Sussex

*Has for ten years conducted experiments in poultry.

†These counties have instructors in poultry-keeping.

Poultry Instruction at Agricultural Colleges and Institutions in England and Wales, 1909-10.

Name of Institution.	Contributory Counties.	Total Population of Area (1901).	Acreage of Cultivated Land in Area.	Grants from Board of Agriculture & Counties.*	Total Expenditure on Agricultural Education.	Poultry Instruction Provided, &c.
ENGLAND.						
Armstrong College, Newcastle-on-Tyne	Northumberland, Durham†	1,797,709	1,137,608	£ 2,439	£ 2,802	No poultry lecturer; no poultry lectures in courses; no poultry work on farm.
Cumberland and Westmorland Farm School, Penrith	Cumberland, Westmorland	331,342	818,363	1.092	1,984	Joint lecturer dairying and poultry; 24 hours' instruction in summer course.
University of Leeds	Three Ridings of Yorkshire	3,596,325	2,726,741	5,366	6,732	Permanent poultry lecturer; in summer course, 20 hours' poultry; also practical work on farm, where is poultry section.
Harris Institute, Preston	Lancashire.....	4,437,518	798,455	—	—	Poultry teaching on County Council Farm at Hutton, where is an excellent poultry section with regular courses; no figures given.
College of Agriculture & Horticulture, Holmes Chapel	Cheshire.....	774,638	533,922	2,276	5,874	Joint lecturer dairying and poultry; 40 lectures in each of three years.
Midland Agricultural and Dairy College, Kingston	Notts, Leicester, Derby, and Lindsay Division of Lincoln	1,693,000	1,913,260	4,019	11,225	Special poultry lecturer; poultry courses of 6 and 12 weeks, also to dairy students.
Harper Adams Agricultural College, Newport	Shropshire, Staffordshire	1,510,998	1,310,577	1,993	3,354	No poultry lecturer; 66 hours' teaching dairying and poultry in second year, also for certificate course.
Agricultural Institute, Ridgmont	Bedfordshire	283,531	256,430	900	1,193	Joint lecturer poultry and bees; 5, 10, and 15 weeks' courses, in which poultry included.
University of Cambridge	Cambs, Herts, Hunts, Norfolk, Northants, and Suffolk‡	1,665,791	3,450,224	2,082	3,126	No poultry lecturer or lectures.
Essex County Technical Laboratories, Chelmsford	Essex	1,062,645	793,893	2,946	3,531	Joint lecturer in dairying and poultry; two courses yearly, in which poultry included.
Eastern Counties Dairy Institute, Ipswich	East Anglia	?	?	476	969	Lecturer on poultry; several three week courses annually.
South-Eastern Agricultural College, Wye	Kent, Surrey	1,653,693	998,961	7,176	18,451	Joint lecturer in agriculture and poultry; lectures 1st and 2nd year; also practical work on farm.
Agricultural and Horticultural College, Uckfield	East-Sussex	605,785§	660,199§	2,468	4,649	Special poultry lecturer; two years' poultry course; 140 hours in 12 weeks' agricultural course.
Hampshire Farm School, Basing	Hampshire.....	768,608	695,926	1,567	2,624	Joint lecturer for poultry, dairying, and bees; poultry lectures in courses.¶
University College, Reading	Berks, Bucks, Hants, Oxon	1,411,898	1,858,141	1,584	7,008	No lecturer in poultry; no lectures in poultry recorded.
WALES.						
University College of North Wales, Bangor	Anglesey, Carnarvon, Denbigh, Flint, and part of Montgomery	391,035	850,722	1,689	2,437	No lecturer in poultry, or lectures on poultry to students, reported.
University College of Wales, Aberystwyth	Cardigan, Carmarthen, Brecon, Pembroke, Merioneth, part of Montgomery and Radnor	459,138	1,664,794	1,521	2,803	No lecturer in poultry, or lectures on poultry to students, recorded.

* In these figures Forestry not included.

† Cumberland and Westmorland are contributory counties, but have not been included, as there is a Farm School at Newton Rigg.

‡ Bedfordshire and Essex are contributory counties, but as they have special institutes are not included.

§ Figures for entire county.

Agricultural College at Uckfield. The rest are in total or varying degrees of negligence of one of the most important and profitable minor branches of agriculture. These seventeen institutions received during the year under review in grants from public funds for agricultural education in its fullest and widest sense upwards of £36,000, of which sum I cannot see that they expended more than £1,000 to £1,200, or about 3 per cent., on poultry instruction. Experimental work is practically unknown to them. There is no excuse, not even that one or two institutions by specialising do the work for all.

It is a suggestive fact that the Ontario Agricultural College in Canada expended more on its poultry department during the year under review, gave more instruction on this subject, and had more poultry students than all the Agricultural Colleges in England and Wales. One fact is evident, that in the allocation of further grants to colleges, as by the Board of Education to County Councils from Central Funds, the Boards of Agriculture and Education should make these dependent upon the adoption of adequate schemes, which embrace the subjects which, in relation to opportunity and need, will yield the greater results. Unless that is done we shall probably find no improvement in the future.

In the table I have shown acreage of and population in the areas served by the respective institutions. Population is not, however, a fair test. In some districts the greater the number of inhabitants the smaller the land available for such pursuits as poultry-keeping, although the consumption of eggs and poultry is correspondingly greater. Under those conditions it may fairly be claimed that there is a limit to the amount of money which can profitably be expended upon poultry-keeping and like subjects, though such limit has never been reached. In those areas where the density of population is much less and opportunities for production vastly greater, we might expect to find encouragement given to pursuits that can be adopted with great advantage. That is not, however, the case anywhere, either in counties or with agricultural institutions. And the culprits are the more important universities or colleges, who evidently have not grasped the position of affairs. That is true as to the University of Cambridge, the Armstrong College, Newcastle, University College, Reading, and the Universities of Wales at Bangor and Aberystwyth. The one exception is Leeds University, which, however, could do four to six times as much in poultry as at present, without overtaking the needs and opportunities of the premier county.

Reverting to the three grades of institutions,

it is desirable to show what is the present position so far as the agricultural colleges and institutions in England and Wales are concerned.

I. The colleges named in the black list, which do nothing whatever in connection with poultry instruction, are associated with counties embracing 8,961,539 acres of cultivated land, with a population in 1901 of 5,725,571.

II. The partially provided colleges, so far as this subject is concerned, at which a joint lecturer in poultry-keeping with some other subject or subjects is engaged, serve areas of 5,408,092 acres of cultivated land, with a population in 1901 of 5,408,092.

III. The better grade colleges and institutions, which each have a lecturer in poultry-keeping, serve areas of 7,925,378 acres of cultivated land, with a population in 1901 of 11,207,282.

Thus we find that so far as these seventeen State and county aided institutions are concerned, only four have permanently employed poultry lecturers, eight have instructors giving a part of their time, in some instances a very small part, to the subject, and five do nothing at all. In the poultry department at the New York State College of Agriculture at Cornell the instructors giving all their time number more than at all the agricultural colleges and institutions in England and Wales, inclusive of men who only give part of their time to poultry work.

So far as can be seen from the official reports, the counties named in the following list do nothing for poultry-keeping, either directly by local classes or through institutions with which they are associated. That is the blackest list of all:

DARKEST ENGLAND AND WALES.

Berks.	Lincoln, Holland.
Brecon.	Lincoln, Kesteven.
Carmarthen.	Merioneth.
Denbigh.	Middlesex.
Devon.	Montgomery.
Dorset.	Northumberland.
Glamorgan.	Oxon.
Isle of Ely.	Pembroke.
Isle of Wight.	Rutland.

I have not dealt in the above with Ireland and Scotland, the former of which has been pressing forward poultry teaching with remarkable results. It may be hoped that systematic experimental work will follow. Scotland is putting into operation the recommendations of the Departmental Committee on Poultry-Breeding which reported two years ago, and thus is seeking to make up for lost time. We may expect great developments as a result.

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ANATOMY OF THE TURKEY.--I.

By NELLIE B. EALES, B.Sc.

[So far as we are aware there has never been published a complete anatomy of the turkey, which has always been assumed to be identical with that of the fowl. Miss Eales has made exhaustive study of the subject, and we are glad to have the opportunity of publishing the results of her valuable inquiry with drawings.—EDITOR I. P. R.]

BEFORE entering upon a description of the anatomy of the turkey, a definition of certain indispensable anatomical terms is necessary.

That part of the body nearest the backbone is *dorsal*, as opposed to the abdominal side, which is *ventral*. For example, the scapula (Fig. 2 sc.) is dorsal, the sternum (Fig. 2 st.) ventral. The part nearest the head is *anterior*, that nearest the tail *posterior*. For example, the clavicle (Fig. 2 cl.) is anterior to the coracoid (cor.). The limbs are fixed *laterally* to the body, and for them different terms are used, positions being distinguished relatively to the point of articulation of the limb with the limb girdle, and to the axis of the limb. That part nearest to the articulation of the limb is *proximal*, that farthest away *distal*. The part nearest the axis is *pre-axial*, that farthest away *post-axial*. For example, the arm articulates proximally with the shoulder girdle, distally with the fore-arm. The thumb is *pre-axial*, the little finger *post-axial*. This is seen by holding the arm extended with the thumb pointing upwards. The thumb is now *pre-axial*—before the axis—the little finger below the axis, or *post-axial*.

SIZE.

The total length of the body from the head to the root of the feathers of the tail is about $2\frac{1}{2}$ feet in a young bird. The head is comparatively small and measures 5 inches by 2. The neck is very long and slender, and is nearly a foot long and $1\frac{1}{2}$ inches wide.

The spread of the wing (from head of humerus [Fig. 2 h.] to tip of feathers) is about 2 feet, and is approximately equivalent to the length of the leg from the head of the femur (Fig. 2 fe.) to the tip of the long toe. The wing feathers are half the length of the spread wing.

The feet, measuring the greatest length and breadth when the animal is standing, are about $5\frac{1}{2}$ by $5\frac{1}{2}$ inches.

These measurements were taken on a male bird of the first year. The female is smaller.

MUSCLES.

Muscle, or popularly flesh, is the tissue that brings about the movement of any part of the

body. It consists of fibres arranged in bundles, with their long axes in the direction of pull, and surrounded by a protective membrane. When a stimulus is conveyed to the muscle by the nerve supplying it, each individual fibre changes its shape and so brings about what is termed the contraction of the muscle. Thus, instead of being long and narrow, the muscle fibre becomes short and thick, and movement of that part of the body to which the muscle is attached occurs.

Those muscles which are most important from the economic point of view are the three great breast or *pectoral* muscles, whose function is to move the wing. The first wing muscle, or great pectoral (Fig. 1, pct. 1), is a large muscle, about 11 inches long and $4\frac{1}{2}$ inches wide, somewhat leaf-shaped, and lying along the side of the breast-bone. It is the depressor of the wing, causing the latter to strike downwards. The second pectoral muscle (pct. 2) is about the same length as the first, but is only about half its width. It is a bipinnate muscle—that is, the tendon from which the fibres radiate runs along the centre of the muscle like the midrib of a leaf. It runs through a pulley (foramen triosseum, see skeleton on page 258) over the humerus (Fig. h. 2) at the shoulder, and serves to elevate the wing. The third, or small pectoral (pct. 3), is a small muscle, about 5 inches long, and attached to the humerus. It supplements the great pectoral in depressing the wing. The three muscles are supplied by the great pectoral arteries (see Circulation).

SKELETON AND BONES.

The *Skeleton* of birds possesses several distinctive characters, which are adaptations to the flying habit. It is extremely light, for a heavy skeleton would be a drawback by increasing the weight of the bird. In order to ensure the least weight possible, combined with a large surface for the attachment of muscles, the bones are pneumatic—that is, they contain numerous spaces filled with air, in connection with the large air sacs of the body.

Secondly, there is a tendency towards fusion of the bones in certain parts in order to

ensure rigidity during flight. The vertebræ of the trunk region, for example, are completely fused, while those of the neck, where movement is required, are free. Thirdly, the breast-bone, or *sternum*, is of comparatively enormous size and is keeled. The object of this is to provide an extensive surface for the attachment of the great wing muscles. A similar sternum occurs in extinct flying reptiles and in bats, while in flightless birds, where

and jaws. The fusion of bones characteristic of the bird's skeleton is well marked here. In the young bird, the sutures, or lines of junction between bones, are quite plainly seen, but later complete fusion takes place between most of the bones. Posteriorly is a large round hole or foramen for the exit of the spinal cord. The orbit is semi-circular, and lodges the eye.

The jaws are very slender posteriorly, but

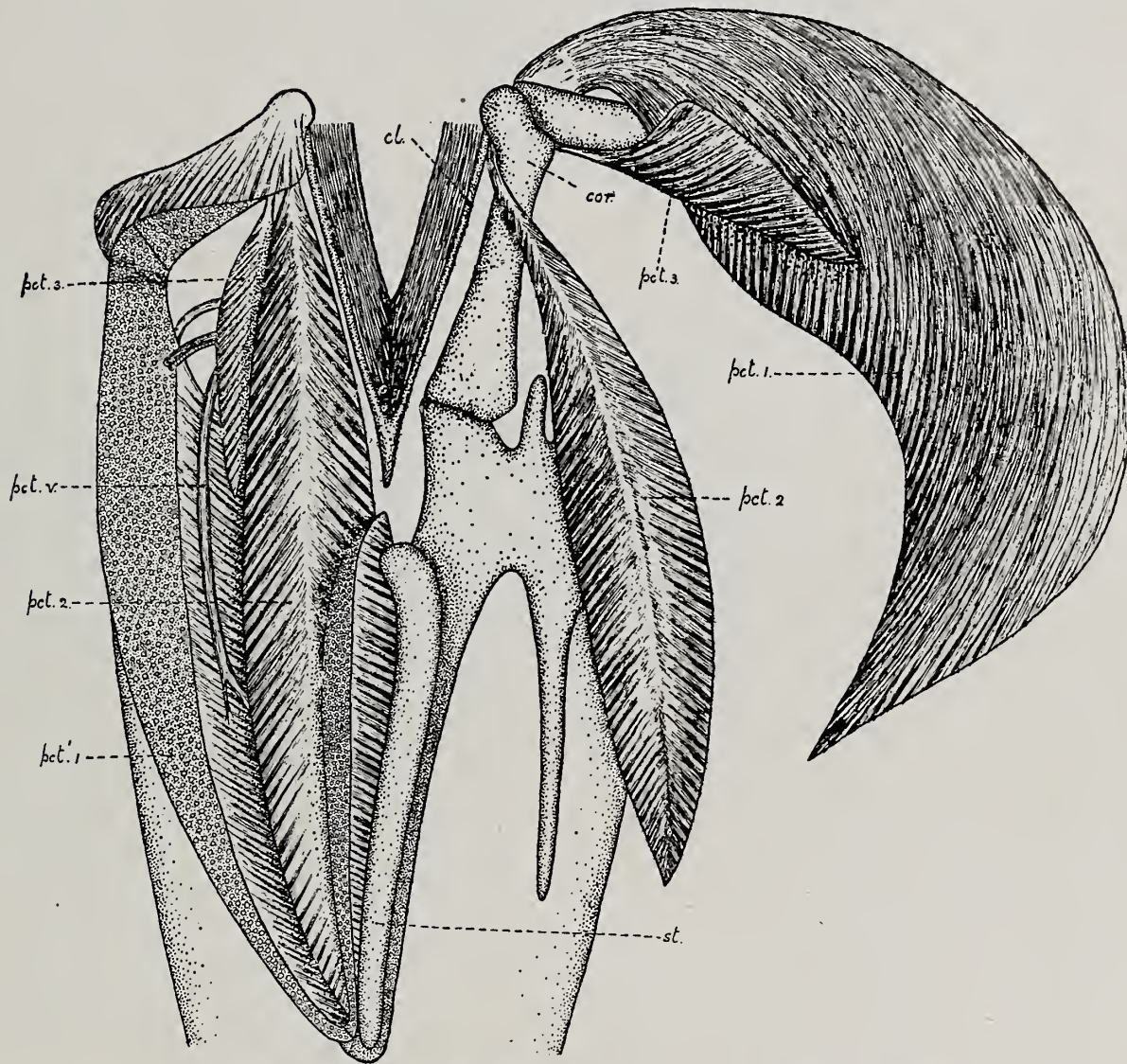


Fig. 1.—BREAST MUSCLES OF TURKEY. From Ventral Aspect.

[Copyright.]

On the left side of the animal (right in figure) the three breast muscles are dissected away from one another to show relative sizes and attachment of tendons. On the right side, a window has been cut in the great breast muscle, which lies nearest the skin, to expose the second and third breast muscles, lying in position. *cl.*, clavicle; *cor.*, coracoid; *pct. 1*, great pectoral muscle; *pct'. 1*, cut surface of great pectoral muscle; *pct. 2*, second pectoral muscle; *pct. 3*, third pectoral muscle; *pct. v.*, pectoral vein; *st.*, sternum.

the wing is vestigial and the wing muscles small, the sternum is flat.

The bones of the skeleton may be divided into three groups:

1. Bones of the skull.
2. Bones of the backbone or vertebral column with ribs and sternum.
3. Bones of the limbs and limb girdles.

1. The *skull* consists of a box of bone for the brain, bony coverings for the sense organs

become broad and horny anteriorly to form the beak. The turkey's jaws never produce teeth at any period of its life history, although fossil evidence plainly shows that birds at some remote period possessed functional teeth. A similar disappearance has occurred in the tortoise.

2. The *vertebral column* consists of a number of ring-like bones encircling the spinal cord.

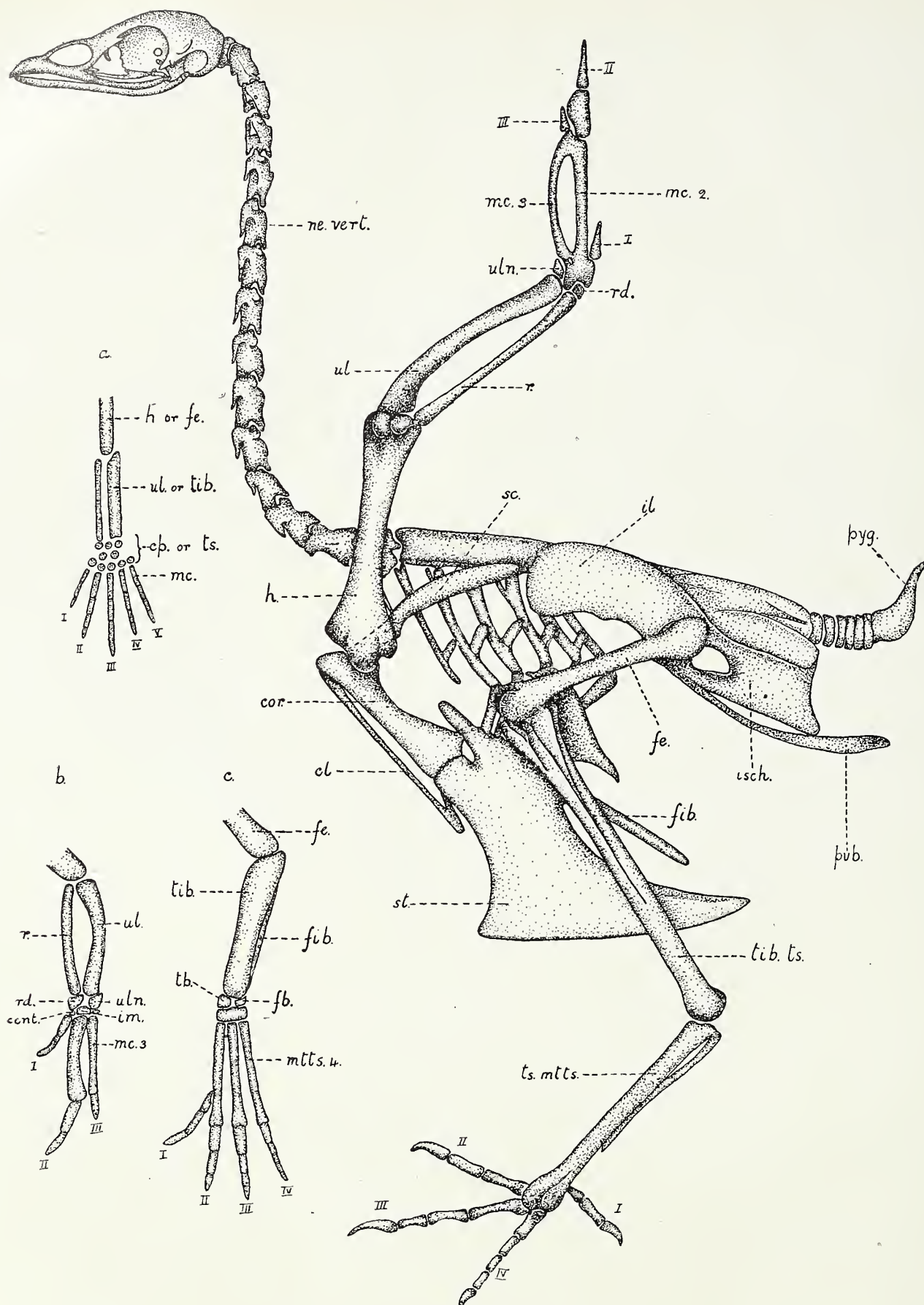


Fig. 2.—SKELETON OF TURKEY. Side View.

[Copyright.]

The left wing is in a somewhat unnatural position to show its separate bones.

A.—Generalised pentadactyle (*i.e.*, having five fingers or five toes) limb. The first letter applies to the fore-limb, the other to the hind-limb. *cp.* or *ts.*, carpals or tarsals.

B.—Fore-limb of nestling, after W. K. Parker. *cent.*, central; *im.*, intermedium.

C.—Hind-limb of nestling, after W. K. Parker. *tb.*, tibiale; *fb.*, fibulare; *mtts.* 4, metatarsal 4.

GENERAL SKELETON.—*cl.*, clavicle; *cor.*, coracoid; *fe.*, femur; *fib.*, fibula; *h.*, humerus; *il.*, ilium; *isch.*, ischium; *mc.* 2, 2nd metacarpal; *mc.* 3, 3rd metacarpal; *ne. vert.*, neck vertebra; *pub.*, pubis; *pyg.*, pygostyle; *r.*, radius; *rd.*, radiale; *sc.*, scapula; *st.*, sternum; *tib. ts.*, tibio-tarsus; *ts. mts.*, tarso-metatarsus; *ul.*, ulna; *uln.*, ulnare.

The first two vertebræ are different from the others, and are known as the atlas and axis. The former articulates with the skull. The neck vertebræ (Fig. 2, ne. vert.) are fourteen in number, and are freely movable. Each articulates dorsally with the next vertebra by a flat surface, and ventrally by the saddle-shaped base of the vertebræ, known as the *centrum*. Saddle-shaped centra are characteristic of the vertebræ of birds.

There are four thoracic or chest vertebræ, completely fused with one another. Between each pair a rib is borne, and there are also two short floating ribs borne between the three last neck vertebræ.

Between the thoracic vertebræ and the tail are an indefinite number of vertebræ, all completely fused, and corresponding to the lumbar (back) and sacral vertebræ in man. The tail is about 2 inches long. It has six small vertebræ, and ends in a conical pygostyle or parson's nose (Fig. 2 pyg.).

RIBS AND STERNUM.

In connection with the vertebral column are the ribs and sternum. There are seven ribs, of which four articulate with the sternum, the seventh articulates with the sixth, and the first two are floating (i.e., have free ventral ends and do not reach the sternum). Five of these (two to six inclusive) bear posteriorly a projection, or uncinæ process, which overlaps the rib behind.

The sternum is keel-shaped, and presents a broad surface for the attachment of the wing muscles. The ventral ridge of the keel is often a symmetrical (Fig. 1 st.).

3. LIMBS AND LIMB GIRDLES.

(a) Pectoral or shoulder girdle. This consists of paired bones, three on each side. There is a dorsal scapula (which corresponds to the shoulder blade in man), a ventral coracoid (abs. in man) and ventral clavicle (corresponds to collar-bone in man).

The *scapula* (sc.) is a flattened blade-like bone, lying outside the ribs, and attached anteriorly to the coracoid and clavicle, the three bones forming the glenoid surface for the articulation of the bone of the arm. A space, or foramen triosseum, occurs between them, through which passes the tendon of the second breast muscle (q. v.).

The *coracoid* (cor.) is a stout, straight bone extending from shoulder to sternum. The *clavicles* (cl.) are fused in the middle line and are very slender. They form the wishing-bone, or merrythought.

THE WING.

The wing or fore-limb consists of an arm, fore-arm, wrist and hand, all greatly modified

to serve the purpose of flight. When folded, the wing has the shape of the letter Z.

The arm consists of a single bone, the *humerus* (Fig. 3 h.), to which are attached the tendons of the three great breast muscles. It has a large cavity on its inner side leading to an air cavity in the shaft of the bone.

The fore-arm is made of two bones, a straight, slender *radius* (r.) and curved *ulna* (ul.). The latter forms the "elbow," and has a series of small projections, which mark the attachment of the wing feathers.

The bones of the wrist and hand show a remarkable fusion of parts brought about by the fact that separate digits (fingers or toes) are no longer needed, but only a plain surface for the attachment of the wing feathers. Two of the wrist bones are free, one lying near the distal end of the ulna (ulnare, uln.), the other near the distal end of the radius (radiale, rd.). There is also a fused mass of bone (mc.) representing three wrist bones fused with the hand, and known as the *carpo-metacarpus*. Three digits only persist in the adult, although four occur in the embryo.

(b) THE PELVIC GIRDLE.

The hip or pelvic girdle also consists of three paired bones, which are, however, almost completely fused with one another and with the vertebral column. At the junction of the three is a concave surface, the *acetabulum*, for the reception of the thigh bone. The *ilium* (il.) is the largest of the three bones, and extends in front and behind the acetabulum. Its inner surface has concavities in which the kidneys lie. The *ischium* (isch.), the second bone in size, extends backwards from the acetabulum, and is separated from the ilium by a large oval space. The third bone is the *pubis* (pub.). It is long and slender, and lies parallel to the ischium.

The *hind limb* consists of thigh, shin, and foot. The *femur*, or thigh bone (fe.), is a short, stout bone whose head fits into the acetabulum. The shin is composed of several fused bones, the tibia, to which is fused the first row of ankle bones (hence the bone is called the *tibio-tarsus*), and a slender *fibula*, which reaches only about three-quarters down the length of the tibio-tarsus (tib. ts.). In man the fibula is free, and, like the radius of the fore-arm, allows of the rotation of the limb.

The bones of the ankle (tarsals) are fused with those of the sole of the foot (metatarsals) to form a bone of about the same length as the femur, and known as the *tarso-metatarsus* (ts. mts.).

(To be continued.)

WHO'S WHO IN THE POULTRY WORLD.

MR. WALTER BUXTON.

IF early associations count for anything in this world, then it is only natural that Mr. Buxton should be a keen poultry-keeper, since when he was quite a small boy he had the management of a large stock of poultry, including fowls, geese, and ducks, belonging to the headmaster of his school—Hatton House, near Newark.



MR. WALTER BUXTON.

In 1895 Mr. Buxton started keeping poultry on his own account, first at a farm in Sussex, and later in Nottinghamshire, but until three years ago his stock was never very large, and he devoted all his energies to the utility and not the fancy side. Three years ago, however, a ten-acre farm at Bentworth, in Hampshire, was taken, and since that time Mr. Buxton's rise in the Fancy has been comparatively rapid. During 1908, 1909, and 1910 no fewer than upwards of five hundred prizes have been won, many of them at the most important exhibitions, a record of which any fancier might be justly proud. Mr. Buxton judged the Jubilee Orpingtons at the Combined Specialist Show, held at Sheffield last December.

It doubtless will be remembered that a long illustrated description of Mr. Buxton's farm appeared in

last month's POULTRY RECORD, so the Trinity Poultry Farm is already quite familiar to our readers. Although the greatest amount of renown has been gained through Jubilee Orpingtons there are a great many varieties to be seen at Bentworth. With Black Orpingtons, Silver-laced Wyandottes, Blue Leghorns, and Buff Orpington ducks a good deal of success has been achieved. Although the fancy side of poultry-keeping appeals very strongly indeed to Mr. Buxton, the utility qualities of his birds are not neglected, special attention being paid to their laying properties.

Mr. Buxton is on the Committees of the Jubilee Orpington Club, of the Hampshire Branch of the Poultry Club, and of the Blue Langshan Club. He is also Club Judge to the Jubilee and Variety Orpington Clubs, while he is vice-president of the Variety Orpington Club. He is a keen pigeon fancier, his special favourite being Tumblers, with which variety he has won many prizes.

MR. T. F. MCGREW.

MR. MCGREW is one of the leading authorities on practical poultry-keeping in the United



*T. F. McGrew
1910*

States of America. He was one of the early-day fanciers who believed that there was a great future

for the poultry industry, and from this belief he has not wavered for more than thirty years, during which period he has had the satisfaction of seeing the poultry interests of North America increase more than sevenfold.

Mr. McGrew was selected by the United States Government to write a bulletin on "Plymouth Rocks and Wyandotte Fowls." He was also appointed to investigate the condition of turkey growing in the United States and to write a Government treatise on the care and management of turkeys. Besides this, Mr. McGrew is the author of "Science and Breeding" and "Perfect Poultry of America," as well as of seven other books that are well known throughout the poultry world.

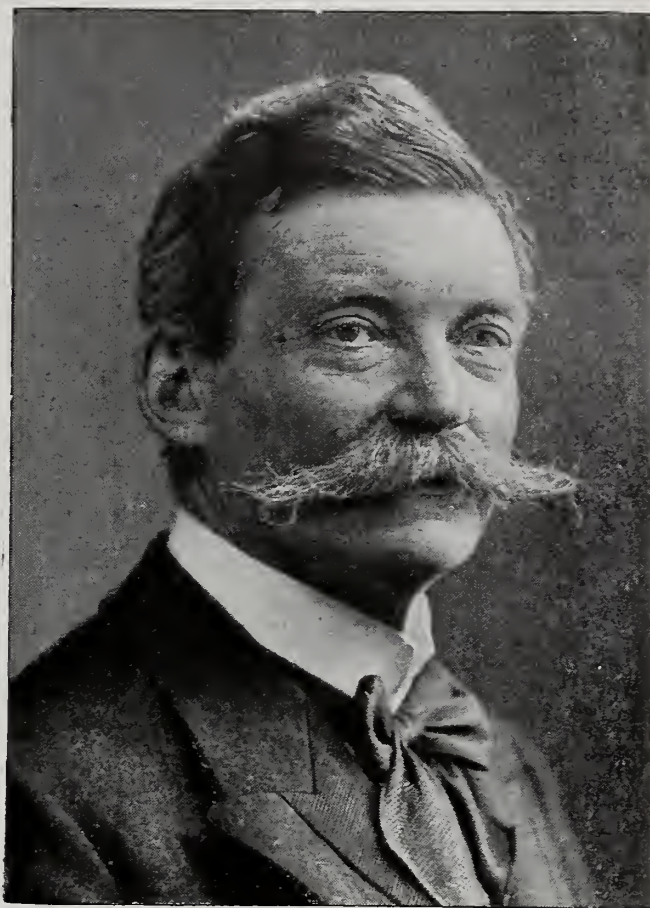
Mr. McGrew has had a wide experience with both the fancy and utilitarian side of poultry keeping. He has long been a lecturer at the leading agricultural colleges of the United States and Canada, while his writings have been quoted by papers of the highest rank and widest circulation. Mr. McGrew was one of the original few who advocated the teaching of poultry husbandry in the agricultural colleges, being called upon to lecture on this subject at the Rhode Island Agricultural College. His knowledge has been gained through actual handling of poultry and from a careful study of the conditions in all parts of America.

THE LATE HUGO DU ROI.

GERMAN poultry-breeders are sorrowing at the death of Herr Kommerzienrat Hugo du Roi, of Brunswick, President of the great German and Austria-Hungary Poultry Clubs, who passed away suddenly on the morning of January 19. It is not too much to say that he has done more for the spread of interest in pure-bred poultry in Central Europe than any other man, and that it is largely by his influence and exertions that attention has been aroused to the value of poultry as a national asset. As seen below, his labours have been recognised by the German Emperor, who thus expressed the sense of indebtedness to our departed friend felt by all who know how earnestly he laboured for the extension of the Poultry Industry in Germany, not alone in later days when a measure of popularity had been attained, but in the time of neglect and apathy. That is ever the difficult period, needing grim determination and abundant faith in spite of rebuffs and discouragements. The name of Hugo du Roi will be remembered in coming generations, for his work will live after him. Such is ever the best reward of those who are pioneers in any constructive task.

Although his name had been known for many years—but for some reason unexplained Herr du Roi has never been familiar to English breeders—the first time I had the opportunity of meeting him was at the great St. Petersburg Congress and Exhibition in 1899, where we had the opportunity of several talks, which greatly impressed me, as did his tall, stately figure, his fine, intellectual face and head, and the fact that he was an earnest student of poultry literature, having followed closely the trend of British developments. I was interested to find that in his library were several of the older books which I value very much in my own, and some of these he had read more thoroughly than I had done. It was at Madrid, however, in 1902, that we saw

most of each other, for, staying in the same hotel, we forgathered during the week spent together in that city. Many questions were discussed, much community of thought and idealisation was revealed, and although his outlook was to a greater extent in the direction of fancy breeding than my own, it was evident that he kept in view the practical aspect more prominently than had been suspected. He



THE LATE HUGO DU ROI.

[By courtesy of *Geflügel-Börse*.

regarded exhibitions as a valuable means to the accomplishment of his purpose—namely, the extension of the Poultry Industry in Germany, in which respect our views were closely allied. Even then, however, what comes to all of us as life advances was present in his thoughts—namely, the continuance of his work when "the last call" had sounded. As I write, the memory comes back to me of Hugo du Roi at the luncheon given to the foreign visitors on May 4, 1902, by Senor José Canalejos, now Prime Minister of Spain, at the beautiful Agricultural School and Farm of Moncloa, a few miles outside the Capital. That was the last time I had the pleasure of meeting him, as he was not at Rome the following year.

The following notes are largely taken from a memoir appearing in *Geflügel-Börse*, in which journal the accompanying portrait appeared. As our contemporary well said, "He is held in the thoughts and memories and hearts of all German poultry-keepers, and the sorrow they feel to-day is deep and true."

Herr Hugo du Roi was born on October 29, 1839, and thus was in his seventy-third year. His father was Oberlandesgerichts-Advocats and Notars Dr.

J. Adolph du Roi, and his mother, before her marriage, one of the Löbbecke of Brunswick. During his education he passed through the Obergymnasium. When seventeen years of age he entered a large tobacco factory at Bremen, and in 1859 removed to Paris, spending a couple of years in that city. On returning to Brunswick he engaged in business, and in 1876 with a younger brother established the firm of Du Roi and Co. He took great interest in the public affairs of his native city, more especially in the Chamber of Commerce, and in 1882 was made Kommerzienrat.

Very early in life he displayed a great fondness for poultry, specialising during his career with Indian Game, but more especially Yokohamas and Bantams, as also in pigeons, a large number of which he always kept. Among his early favourites were ducks, especially Aylesburys. My own remembrances showed that he displayed great interest in Game Fowls of various kinds, but whether he kept other than the Indians is not recorded.

Shortly after his return to Brunswick from Paris he joined the Brunswick Poultry Breeders' Association, which is one of the oldest societies in Germany. Assisted by some friends, he organised the first Poultry Show in that city, held in the Wilhelmsgarten, where the class system was first introduced. During his stay in France he learnt much at the Jardin d'Acclimatation, where poultry were largely bred, and also at the great Poultry Exhibition held in the Palais de l'Industrie, Champs Elysées, which doubtless inspired his emulation.

His services to the Poultry Industry in Germany are well known. Breeders were not content to remain in what may be termed the kindergarten school, but by means of conferences, shows, premiums, and through the Press, they assisted development and inspired higher ideals. Du Roi had a definite aim, and was not circumscribed or limited in his efforts. He realised very early that to extend and further the work the utility side must be encouraged, and that the best exhibition stock are often inferior in practical qualities.

In 1881 he promoted the German and Austria-Hungarian Poultry Breeders' Club. With fifty members the first year he ran it himself, but in the second year was appointed president, continuing in that high position until his death, exerting a wide influence and generally recognised as the chief of German poultry-breeders. During the early days there were many difficulties to overcome, many struggles to be waged. Attempts were made to confine the club to fancy poultry, but these he always and successfully resisted, recognising such to be important but only one part of its work.

The services rendered by Hugo du Roi to the Poultry Industry as a whole have not gone unrewarded. In addition to local honours, he was decorated with Russian, Prussian, and Spanish Orders. But his greatest joy was when on his seventieth birthday his Majesty the Kaiser conferred upon him, as a recognition of his services in promotion of the Poultry Industry, the Royal Prussian Kronen Order of the Third Class. Pleasing though such honours may be, fit expressions of acknowledgment for earnest labours in promotion of the general well-being, they are but supplementary to the universal regard and respect for one who strove earnestly and zealously over a long series of years, and who is enshrined in the hearts of those who remain.

EDWARD BROWN.

DUCK-KEEPING IN SMALL RUNS.

IT is not generally known that ducklings for table purposes may be produced very successfully in small runs, for beginners are usually under the impression that to keep ducks profitably one needs a pond and an unlimited range. This is perfectly true with regard to breeding stock, and unless one has suitable accommodation of this description it will not pay to keep adults for breeding, especially as one can purchase eggs for hatching of large table-breeds kept on farms at a very low rate. Some breeds of ducks, like Indian Runners and Campbells, are excellent layers, but they are too small for the table, and require a free range to give the best results, so that they are not likely to suit the average amateur. On the other hand, ducklings for the table must be kept in confinement from the day they are hatched until they are killed. They should only have sufficient water for drinking purposes, and the small poultry-keeper can turn them out as successfully as the large breeder if he takes the ordinary precautions to assure cleanliness and quick growth.

THE AGE FOR KILLING.

The life of a table-duckling must necessarily be short, for the quill feathers begin to grow when the birds are nine to twelve weeks old, and when that process commences it is hopeless to try and get flesh upon the frames. As in the case of table-chickens, there is a period when, feather growth having temporarily ceased, the birds are in fit condition for fattening and killing; but if that period is missed ducklings must be kept on for another two or three months until, having assumed full plumage, they are again able to put on flesh. As ducks grow a large frame very quickly, and attain from four to four and a half pounds weight in eleven weeks, with good management, it will be understood that it is absolutely necessary to keep a watch upon the feather growth and kill them off before the pin-feathers appear if they are to prove profitable.

SUITABLE BREEDS.

The best table-breed, on account of its size, quick growth, and colour, is the Aylesbury; but there are some strains of cross-bred Aylesbury-Pekins, combining the properties of good layers and table-birds, that will answer the purpose very well. Coloured ducks, such as Rouens, do not realise such high prices, although they are useful for home consumption. In any case, when buying eggs for hatching, be sure and procure them from large table stock kept on a farm or a good grass range; and the earlier they are procured the better, for during May and June fat ducklings realise high prices, and up till the end of August there is a keen demand in all residential towns and seaside resorts. The eggs take four weeks to hatch, and allowing another eleven weeks for growth, one may estimate the time to procure the eggs so that the birds may be ready when required.

HATCHING AND REARING.

A good-sized hen will cover nine or ten duck eggs, and they may be treated in much the same manner as hens' eggs during the hatching period, although if the nest is dry it will be advisable to sprinkle a little lukewarm water over them every

day during the last fortnight. When hatched, the hen and her charges may be put into an ordinary coop, and the first feed for the youngsters should consist of chopped hard-boiled eggs mixed with bread-crumbs. After two days the diet may be changed for scalded coarse oatmeal or fine biscuit-meal, and within a week a regular diet of soft food may be begun, comprising pea-meal, sharps, barley-meal, and Sussex ground oats. A little cooked lean meat should be provided every day, together with some chopped green-food, and for the first two or three weeks the meals should be given every two hours, whilst both food and water should be served in guarded troughs. Some fine grit should be mixed with the food, and for the first few weeks we find it a good plan to give a little mixed chicken corn

killing. Larger houses may be provided, according to the number of birds kept, and as many as twenty-five may be run together in one flock. Where a large number of ducklings are bred it is a good plan to build a range of houses and yards in a sheltered situation. Very little space is necessary in the yard, for table-ducklings do better when they have little or no exercise, and for sanitary reasons it is better to have the surface of gravel or ashes, with good drainage underneath, rather than turf or bare earth. At any rate, the place must be kept clean, and in a gravel run it is an easy matter to cleanse the surface by swilling it, whilst the house should be well bedded with litter, such as straw, dead leaves, or chaff, which should be renewed frequently, so that the place never gets wet and



BREEDING-PENS OF AYLESBURY DUCKS.

[Copyright.]

The Aylesbury is the most suitable variety for supplying the early spring markets, since the ducklings develop so rapidly.

for the last feed at night. Ducklings do not require much brooding, unless the weather is very severe. They are hardy creatures, and will get along without the hen when they are three to four weeks old. Up to that time the coop should be moved frequently, but the hen should be kept confined. When eventually the ducklings are weaned they should have a small, well-ventilated house to sleep in at night, unless an outhouse can be made to serve the purpose, and as rats are very often attracted where ducklings are kept, it is advisable to have a boarded floor. At one time we kept ducklings in a pigstye fitted with a door to close at night, but if no such convenience can be found, a wooden house, 6ft. long by 4ft. wide, and 3ft. high at the back, with a sloping roof and adjustable shutter for ventilation in the daytime, will accommodate a dozen birds until they are fit for

dirty, for, contrary to general belief, ducklings do not thrive in wet and filthy surroundings.

FEEDING FOR GROWTH AND FLESH.

As the birds grow fewer feeds may be given every day. After the age of three weeks it will be sufficient to feed them every three hours, and by the time they are six weeks old four meals a day will be enough. If there are any household scraps to spare they will be very useful, and can be utilised in much the same way as recommended for poultry, being soaked and mixed up with Sussex ground oats. Animal food is necessary for ducklings, and the best results can be obtained when liberal supplies are given. The best for this purpose is lights or offal, which may be purchased cheaply from a butcher and boiled up as required. The liquid will be found useful for mixing up the soft food, and

the meat should be chopped up and given at the rate of a tablespoonful a day for each bird when three weeks old up to two ounces per day when the birds are eight weeks old and over. The effect of this will not only be to stimulate growth and build up a large frame, but also to promote strength and vigour, and the birds will be in better condition for putting on flesh towards the end. The regular diet from three weeks upwards should consist almost entirely of soft food, but for the sake of variety and to tempt the appetite, changes may be made. Such material as a cooked cereal, which is comparatively cheap, may be used in conjunction with Sussex ground oats, pea-meal, maize-meal, and barley-meal at various periods up to the age of about eight weeks, when it is advisable to concentrate attention on the fattening foods entirely. These include Sussex ground oats, pea-meal, and maize-meal, and they may be used either separately or together, mixed up, if obtainable, with skimmed milk or buttermilk, together with melted fat and scraps of fat and lean. Two or three weeks' heavy feeding on materials of this description will put on the finishing touches, and before the pin-feathers appear the birds should be both large and fat. During all this time the ducklings should have no more water than they require for drinking, and this should be given in guarded troughs, for if it is in open pans the birds will foul it at once. Although the food should be mixed rather soft, especially during the later stages, ducks need a good deal of water at feeding times to help them swallow their food, so that it is advisable to fill up the water-troughs before they are fed, even if they have very little during the interval. Too much water has the effect of swilling the food through the system, and it is advisable to bring up the birds from the very first to be satisfied with a moderate quantity.

KILLING.

When the time comes to kill the birds it is necessary to avoid disturbing them. If one or two are required at a time the best plan is to head them off and drive them out of the yard, instead of driving them into a corner and catching those required, which will have the effect of upsetting the remainder and putting them off their feed for several days. If they must be handled to ascertain the condition it should be done at night. The best way to kill a duckling is to strike it a sharp blow on the head with a stick, and afterwards to sever the main artery by inserting a sharp knife at the joint of the head and neck. Plucking should be done as early as possible, and one will soon see at that time whether the birds have been left a little too long, for the small pin-feathers will cause a great deal of extra trouble if they are already in evidence. In that case the remaining birds of the batch should be killed off at once, for they will certainly lose condition each day they are kept.

German National Exhibition.

Almost at the last moment the German National Poultry Exhibition, arranged to be held at Munich in February, and for which preparations on a vast scale had been made, was prohibited in consequence of the prevalence of foot and mouth disease in cattle and cholera among poultry.

THE FIRST SIX WEEKS OF A CHICKEN'S LIFE.

By FRED. W. PARTON.

IN rearing any kind of stock a good start in life is half the battle, and chickens are no exception to the rule. Thus the importance of proper management during the first six weeks must be apparent to all. The chief object should be to keep the chickens growing, and to be sure that satisfactory progress is being made in this direction. Personal attention to the wants of chickens goes far to overcome many of the little pitfalls incidental to their rearing. However good the attendant may be, or however expert the poultryman, a little personal supervision on the part of the owner is a factor militating against slackness, to which even the most conscientious are occasionally prone. Neglect in the early stages means a check to growth and condition, and these can only be regained after weeks of studious care and attention. Even then, the evil may not be entirely obliterated.

When the chickens have all made their exit from the shell the hen should be supplied with food and water. Nothing special in the way of food is required, and wheat or a little mash should be given to her. After she has satisfied her appetite she should be replaced in the nest-box and allowed to brood them until they are perfectly dry. The hen and her family may then be removed from the sitting-box to a roomy coop, which should have been previously prepared for her tenancy.

By the time this is accomplished the chickens will have reached the age—twenty-four or thirty hours—when they may partake of their first meal. A board should be placed on a level with the framework, at the front of the coop, and the food placed thereon. The slats of wood are sufficiently far apart to enable the hen to protrude her head and neck so that she may cluck and teach her charges to peck. What the first feed should consist of is very largely a matter of personal opinion, and each individual may follow his own past experience or preconceived ideas as to the best method of feeding. We have known men equally successful who have adopted entirely different methods. It may, therefore, safely be said that there is no one method that stands out prominently head and shoulders above all others. Common sense must be used in this direction, and the food, of whatever nature, should be given in proper quantities; it must not be allowed to sour by long exposure; it must be properly mixed, if of a sort that requires mixing; and the grain should be of good and sound quality. If all these points receive attention, then there is little to choose between the various systems.

Some of our older breeders swear by the old system of eggs and stale breadcrumbs, and we are bound to admit that some of the best and most robust chickens we have seen have been fed in this manner for the first three or four days of their lives. There are others who declare that this form of food causes constipation, which is beyond a doubt perfectly true, but, at the same time, the binding nature of the hard-boiled eggs may be altogether neutralised by liberally providing lettuces, the tender under leaves of cabbages, or similar green-food, finely chopped, and mixed with the

hard-boiled egg and breadcrumbs. There are others who declare in favour of the dry system, and there are those just as strong adherents to mash feeding. It is, however, a very unwise policy, because a man has been successful in a certain direction, to condemn all other methods that are opposed to his own.

Personally we are much in favour of combining the two systems of feeding. During the first month the chickens should be fed entirely on small grains, some excellent kinds of which are on the market at the present time. Those, however, who prefer to buy the seeds separately and make their own dry mixture will find the following a suitable preparation, containing, as it does, the necessary elements for the basis of a large frame and the encouragement of rapid growth: Wheat (broken), 3 parts; dari, 2 parts; canary seed, 2 parts; millet, 2 parts; coarse oatmeal, 2 parts; maize (broken), 1 part; hemp, $\frac{1}{2}$ part; buckwheat, $\frac{1}{2}$ part; rice, 1 part; meat scrap, 1 part; grit, 1 part. This mixture may be given from the first, and continued for three or four weeks, when the small and more expensive seeds, such as canary seed, millet, and oatmeal, may be omitted. One of the great advantages of the dry system is that it contains so great a variety of foods, which is one of the secrets of success in rearing chickens. In addition to this the saving in labour is very considerable, while there is no doubt that the mortality is lower. For one thing, there is not the same tendency to diarrhoea, which in some seasons is quite a scourge. In order to obtain the full benefit of dry feeding it is necessary that the chickens shall be compelled to work for their food, and, therefore, the seeds should be scattered among chopped straw or chaff so that it brings their natural scratching propensities into play. This considerably aids digestion. When the chickens are a month old two feeds a day of soft food should be supplied, the first about 7 a.m. and the other about 3 o'clock in the afternoon, consisting of ground oats and barley-meal in equal quantities, or chicken-meal scalded in hot water mixed with either of the above. Coarse oatmeal and milk made into a stiff porridge is also excellent, and when they are so fed their growth is very apparent. This, with the addition of tender green-food and small quantities of cut green-bones, provides all the constituents needed not only for laying a foundation of a robust constitution, but for maintaining it.

The coops should be placed in a dry position which is sheltered from the east. This is always necessary, but especially so early in the season. It is often claimed that chickens should rough it and become accustomed to the severity of the weather by exposure. With this we totally disagree. We would not, however, for one moment suggest that they should be reared in a very hot atmosphere, and be treated like a delicate hot-house plant, but there is a happy mean between the two extremes. Whatever the state of the weather, and at all times of the year, shelter is an absolute necessity, and where natural shade, in the form of bushes and scrubs, is not obtainable, some sort of artificial protection should be erected. Each poultry-keeper, by exercising a little ingenuity, can improvise something that will afford temporary shelter; straw plaited into hurdles, after the style of those provided for breeding ewes, or canvas attached to wooden pegs, which should be about thirty-six inches apart, and stuck into the ground after stretching the canvas

perfectly taut, affords excellent shelter, and can be moved about according to the direction of the wind. The coop should be made sufficiently large to ensure the hen having freedom of action, and for the safety of the chickens, since unless the coop is roomy the youngsters may be trampled to death. A wooden floor to the coop is necessary when the soil is of a heavy clay nature, as the cold and damp arising therefrom are injurious to both the broody hen and her charges. Under these conditions the floor provided should not be nailed to the bottom of the coop; instead of this it should be made loose or merely hinged on. The only objection to the floor being a permanent part of the coop is that the work of cleaning it is not so thoroughly carried out, and this is of the utmost importance. When the floor is loose all that is necessary at frequent and regular intervals is to remove the coop from the floor, when it may be well scrubbed before being placed in position again. When plenty of space is available for the rearing ground, so that the coops are placed some distance apart, the hen may be allowed to wander at large with her chickens after they are a week or so old, but if space is cramped it is safer to keep her confined, and there is small danger of the chickens straying far away from their imprisoned mother. It is wise, under these latter conditions, for the coops to be moved every day, otherwise the ground will become tainted and this undoubtedly will give a serious check to the condition of the chickens. The importance of a continual change is at once suggested by the growth and general appearance of the first batch of chickens compared with the second or third or later batches; when they follow one after the other on the same patch of land. There is, as a rule, no comparison between them. The first lot have enjoyed the fresh sweetness of the soil, the goodness of which has completely departed long before the time that the last lot appears.

If rigid attention be paid to cleanliness, if the coops are regularly moved from place to place, and if adequate shelter is provided, ordinary coops give all the accommodation that is necessary until the chickens reach the age of six weeks, at which time the hen will probably leave them to take care of themselves.

NEW ZEALAND POULTRY CONFERENCE.

THE first of what promises to be an annual gathering was held at Christchurch, November 15 to 18, 1910, and was attended by nearly fifty delegates. An Association was formed for the Colony, with Her Excellency Lady Islington president, an influential list of vice-presidents, Mr. E. O'Reilly chairman, and Mr. J. B. Merritt, secretary and treasurer. This is to be a registered body, to which we wish every success. The papers read were "The Fattening of Poultry for Market" (Mr. F. Brown, Government Expert), "The Economic Values in Poultry Keeping" (Mr. Leger), "The Egg Circle Movement" (Mr. T. H. Rutherford), "Which are the More Profitable Layers, Ducks or Hens?" (Mr. S. H. Scott), and "Farmers as Poultry-Keepers" (Mr. J. Rose). A deputation was received by the Minister of Agriculture, which placed before him suggestions for encouragement of the poultry industry, and was promised careful and favourable consideration.

THE MODERN CRAZE FOR SIZE.

The following article by Geo. A. Palmer contains so many views that are antagonistic to opinions expressed from time to time in our columns that we submitted it to several well-known authorities, and following his article are printed their remarks.—Ed. I. P. R.

ANYONE with a love for abstract speculation might ponder for some time on the evils that may accrue from a craze for size. Proverbs endless have been framed in many languages to illustrate this. "In the middle course safety lies," said the Romans, and they were right. Anyone familiar with the larger farm stock realises how true this is. A well-known scientist, who was discussing this and kindred subjects with me by correspondence, once said in a letter, "Life is made up of growth plus reproduction. If we have too much of the one we have too little of the other." My own observations during a life spent in the country with all kinds of stock fully bears this out. Let us glance at the horse for a moment. There is always more energy in the medium breeds than in the large: energy which expends itself in production of power in the horse, milk in the cow, and eggs in the hen. A small pony of twelve hands is the most economical form of horseflesh and can do the most work for food eaten of all his tribe. He can take a greater weight in proportion to his own than a Shire horse bred expressly for draught purposes. He can trot more miles with a weight in proportion to his own than can a sixteen-hands horse, and as he has better joints and feet can keep it up for far more years than his larger brother. Even in the great dray horses, those which run too much to size are of the least value for work. As my old friend, the buyer of horses for the London and North-Western Railway, once said to me, "We send the thick-set little horses to the hilly towns and the very big ones into the flat districts. The big ones break down under extreme strain." To show that this law is universal, I may say that the most economical milking cows—those which convert the greatest proportion of their food into milk—are found in the small breeds, such as the Jerseys and Guernseys in this country, the Keries in Ireland, and the Ayrshires in Scotland. None of the very large cattle, such as the Galloways, Angus, Lincoln Reds and Herefords, give anything like as much milk in proportion. Individuals occasionally do, but never the races as a whole. I do not mean to argue from this that no one should keep the large breeds; for even in milking cows there is an ultimate beef value to consider, and the calves will not fall all heifers; but this does in no way affect the line of argument. In sheep the most prolific are the Downs and their derivations and the least are the giants of the race, such as the Lincolns and Cotswolds. Even the small mountain and moorland breeds, such as the Scotch, Welsh, and Exmoors, breed single lambs largely on their own sparse pastures, yet if removed to better districts follow the universal law and at once become prolific.

In poultry we find it exactly the same. The greatest layers of all are the Hamburgs, Leghorns, and fowls of that class; the moderate layers

are in the medium breeds, such as the Rocks and Orpingtons, and the least economic producers are the great Asiatics. Nor is this confined to one branch of poultry; the water-fowl are the same. The best layers of all the ducks are the Runners and the small breeds which have been made from them; in geese the greatest layers are the Chinese. The small breeds of turkeys are the great layers, and in any one breed, such as the Bronze, the small hens are always the best layers. All these are facts known to any observant man who has spent a life amongst all kinds of live stock. But I propose to go even further. The craze for size in the show-pen has had a most adverse influence upon the economic qualities of many of our best breeds. With the birds of anything like equal merit before him, the average judge gives the award to mere size. No one seems to realise that it is just as much a fault for a bird to be above the normal size of his breed as below. Who can say that the Ancona is as economic a producer to-day as it was before the craze for size led to the crossing with Minorca? Who can say that the so-called Black Leghorns one sees winning to-day, leggy, half-bred Minorcas, are equal to the true Italian type? Why should the rule of exaggeration always obtain? Is there nothing else in showing but to get Bantams as small as possible and all other breeds as large as they can be forced; not by good honest feeding but by crossing? Even in table breeds, if we have too much size we lose quality of flesh.

Those growing fowls for market must look for profit, and are not to blame because they seek for the greatest weight in the least time. All the Games have fine quality of meat, so has the Houdan, but what can be more delicious than a Campine killed young enough? I have bred about sixty varieties of poultry in my time and have seen the fashion change in many breeds. In another direction we find that extreme size leads to failure. A cock of much above the average size for his breed rarely makes a good sire. It is so with every breed I have tried. I once had two brothers in Croad Langshans, one 10lb. and the other 14lb. They were equal in points but the smaller bird left the best stock. I could give many such instances in sheep and horse breeding.

If we want size we may have it, but it must be at the expense of something else. By breeding we may modify anything and shape it to our own ends, but what we cannot do is to keep energy and quality if we want extreme size. There is one other article, the size of which I wish to refer to, and that is the egg. Those who are chiefly interested in marketing these find the large ones most readily saleable, and are therefore doing all in their power to induce people to aim at producing them. England is the market of the world, and the pick of the world's produce is sent here. It is therefore scarcely reasonable to expect our

hens to average eggs equal in size to the picked ones from other countries. Admitting that enormous quantities come in from abroad, and that they are better tested and graded than ours, yet there is nothing the matter with the English new-laid egg trade. If we had our eggs returned upon our hands and could not sell them because of imports, we might cry out, and with reason, but the English egg is the one article with which we cannot glut our market, the one thing for which there is a steady unflinching demand. Prices have been better during the last few years than ever before, therefore there is not that urgent need for increasing the size of our eggs unless it can be shown that nothing but good can accrue from it. Here are a few facts about large eggs. Those of much above normal size for the breed always have the greatest proportion of infertiles and hatch out the weakest chickens. I have before now had a hen that laid exceptionally large eggs all the season, and never got a single chicken from her. If one takes the very largest and smallest eggs out of a basket and breaks them into two saucers he will find that the small egg has quite as large a yolk as the other. The size of eggs as well as the quality depends a great deal upon the feeding, and I have never yet had hens of any of the medium breeds that laid eggs under 2oz. in the second season, and very rarely after they had been laying two months from their commencing. Some years ago there was a dispute about the size of eggs from Anconas in one of the poultry journals. It was in March, and I weighed the eggs produced in one day from over thirty breeds, and found that, whether pullets or hens, eight eggs weighed from 16oz. to 19oz. When arguing the case for small breeds I might have mentioned that 5lb. hens lay just as large eggs and as full of yolk as 9lb. hens. We of the Utility Poultry Club have before now been adversely criticised because we allowed points to eggs under 2oz. laid by the competing pullets. When we consider that, in the short winter competitions, they are only tested for the first few months of their laying life, it would obviously be most unfair to allow no marks for eggs of 1 $\frac{3}{4}$ oz., which are readily saleable at this time of the year. Pullets which start at that size will be easily laying 2oz. eggs by April. But there is a much stronger argument against condemning all but large eggs. The manager of the present laying competition, which I am inspecting for the club, has noticed what is known to many practical poultrymen—that the everyday layers of any breed are turning out 1 $\frac{3}{4}$ oz. eggs, and that the few pullets in the competition which are laying eggs 2oz. to 2 $\frac{1}{2}$ oz. only lay one in about three days. It is the knowledge of all these facts that makes me extremely averse to striving for extravagantly large eggs; for not only should we get far less in number but we should soon have a debilitated race of fowls subject to far more ovarian diseases. The consuming public knows nothing of these things. It is the duty of those of us who do know to educate them and not to erect false standards.

SOME CRITICISMS.

I AM greatly obliged by your courtesy in permitting me to see the article of Mr. Geo. A. Palmer, and to comment on the latter part. With the first portion I am absolutely and entirely in agreement. He deserves the thanks of all who are interested in

the development of egg-production for presenting our case once more in such an interesting, convincing, and succinct manner. The abnormal increase of size in some of the chief egg-producing races had done great harm in this country, and will do so to an even greater extent if not checked. Nor is it in the ultimate interests of breeders of high-class stock, who will find a steadily lessened demand for their birds except those intended for exhibition.

But as to the question of size of eggs I must emphatically and strenuously dissent from Mr. Palmer's conclusions. Doubtless I am included in those referred to by him as critics of the former policy of the Utility Poultry Club in connection with the method of scoring at one time in the laying competitions, for there was abundant testimony that very serious harm was being done by encouragement of number at the expense of size. One instance will suffice. In a district which need not be named a Collecting Depot was established a few years ago, and the promoters did excellent work in disseminating pure-bred poultry of high average egg records. Unfortunately, however, these were from strains in which small eggs from pullets predominated. The effect was disastrous. During the first season more than seventy-five per cent. of the eggs produced were below the market standard, and had to be sold at a low figure. The result was failure. Many other cases could be cited, but this will suffice.

It may be admitted that during the period of greater scarcity in residential and manufacturing districts, when new-laid eggs are at a premium, and can hardly be obtained for love or money, 1 $\frac{3}{4}$ oz. eggs will be accepted, because they are largely sold direct to consumers. But the time is short. If these are sent to the great centres of population, and the bulk of rural producers must look to that trade for profitable returns, then the small eggs will be at a serious discount, and realise a price much below their food value. Anyone who doubts this statement has only to obtain the opinions, as expressed in cash payments, of the best retailers in nearly all our chief centres to speedily find his doubts removed. The 2oz. standard for winter eggs and 2 1-8oz. during the spring has come to stay, and those who attempt to fight it will find they are "kicking against the pricks," which is seldom a satisfactory process—to the kicker. I would ask Mr. Palmer and others to look again at the row of eggs which headed my article in your December issue. The 13lb. egg represents the 1 $\frac{3}{4}$ oz. product. Would these be content with such an egg, if they were buyers paying the best prices?

What breeders have to aim for is to secure pullets which will, after the first two or three eggs laid, start with those weighing 2oz. We do not ask for more. That is the way of greatest success—if *even the total number be slightly reduced*. The Danes began by breeding for size, and after that was secured proceeded to increase number. Many of our breeders have, to their own hurt, adopted the latter and largely ignored the former. Having had to face for some years the market side I feel very strongly on this question, and I regret deeply that Mr. Palmer should lend the weight of his influence in a direction which I am confident is antagonistic to the best interests of poultry-keepers. We shall never educate consumers to pay as much for small eggs as for those up to standard weight, and if we do not produce what they are willing to

pay most for they will give their custom and their money to those who do.

EDWARD BROWN.

I HAVE on many occasions perused the writings of Mr. Palmer with considerable pleasure and satisfaction, and his advice has doubtless often been found of great service to utility poultry-keepers. With his views on size, however, I find myself in wide disagreement, and it seems to me that Mr. Palmer has reviewed the subject from a very narrow standpoint. His arguments, too, are much too shallow to withstand examination.

In the first place we may ask why an increase in size should interfere with the utilitarian qualities of any class of stock? Mr. Palmer seems to lose sight of the important fact that the production of eggs is governed by the generative organs of the fowl, and that the laying of two hundred eggs and over per year is altogether an exaggeration of Nature. This state of affairs has been brought about by artificial means, by breeding by selection, and by thus bringing about a change in the nature and character of the fowl rather than by an alteration in conformation.

Like Mr. Palmer, my life has been spent out of doors amongst all kinds of live stock, and, singular to say, this very fact has induced me to come to an almost opposite view to his in regard to the question of size. I hold that he is very wrong in his similes. He mentions the case of the 12-hh. pony that can beat the 16-hh. horse. I hope Mr. Palmer does not mean this as a universal rule, because I know several 12-hh. ponies which are absolute "slugs," whilst I know of many 16-hh. horses which are constantly "on the bit," and can "last" a journey; neither is there any class of horse to-day which pays better from the breeder's standpoint than the big Shire. A good, big, well-built Shire, providing he is 16-hh. or over, is always in demand at big prices in Lancashire and Yorkshire industrial centres for purely utility purposes, whilst the smaller Shire is in scarce request. Again, what use are small hunters? A hunter under 15.2 to 16-hh. is the most difficult thing imaginable to sell at anything like a paying price. Here again, where endurance is absolutely essential the demand is for size and bone.

Mr. Palmer turns also to cows in support of his argument. I reside in a milk-producing district, and I am acquainted with many dairymen milking one hundred cows and over. If Mr. Palmer's theory that the small breeds are the most economical is correct, these shrewd dairy-farmers would stock their Mistals with Keries, Ayrshires and Jerseys. As a fact, there are few of these breeds seen in this district, the selection almost invariably being for big, roomy Shorthorns with "bags like washing tubs." And these men know what pays best, a feature of the case which is the true test of utilitarian qualities.

In turning to sheep, Mr. Palmer makes very original suggestions in endeavouring to support his line of thought. He makes mention of the mountain breeds. He suggests that these breeds are rendered more prolific on improved pastures. If this theory were true, the wealthy classes would be responsible for any increase in population, whilst the poorly-fed and poorly-housed would be practically childless. It is a well-known fact that the opposite is the case. For proof see the families of poorly-paid farm

labourers in agricultural districts and the households of the artisan population of our big industrial centres.

Neither can I believe that this question of the fruitfulness of poultry is controlled to any great extent by breed. It is not so much a question of race or size as it is of character, otherwise we should not see White Wyandottes and Orpingtons, notoriously large breeds, figuring as conspicuously as White Leghorns in our laying competitions, whilst the smallest breeds, such as Hamburgs, are never heard of in these supreme tests of usefulness. Yet it is claimed that increased size reduces the economic qualities. The question of shape of comb, whether a fowl has red lobes or white ones, whether it is 3lb. or 6lb. weight, has little or nothing to do with egg-production. If the fancier desires to improve some external characteristic of the bird he cultivates, he selects his breeding stock with that end in view. The utilitarian pedigrees his birds on their egg-laying record. He is not influenced by shape, size, or colour, because he knows that the flow of eggs is not controlled by these matters, but by the inherent untangible qualities placed there and generated by a strict and systematic method of line breeding. Mr. Palmer says: "If we want size we may have it, but at the expense of something else." In regard to fowls, why should this be so? The average fowl to-day is much larger than the jungle fowl, from which it is claimed all races of poultry originated, yet the egg-laying capacity is not to be compared. We have on our farm Brown Leghorns weighing about 3½lb. to 4lb., which as egg machines are utter failures in comparison to White Leghorns in the adjoining pens, weighing up to 7lb. and 8lb., whilst we have White Orpingtons, a much heavier breed still, which in turn can out-distance the white Leghorns, thus proving the failure of the rule Mr. Palmer puts down.

In this country it is a mistake for the utility poultry-keeper to neglect size. It is as much a source of value to him as are a few extra eggs per annum. The profitable period of an egg machine is limited, indeed brief, and the time comes when the carcase has its value, and that is where size comes in. It is well known, too, that the chicks do not all come pullets, that the cockerels have to be marketed, and size again scores. All things considered, then, even from a strictly utility standpoint, it must be admitted that size has a distinct value, and we cannot afford to overlook the fact that it is not a "craze." It seems to be the unfortunate practice of writers on utility poultry, almost without exception, to conceive it their duty to condemn the fancier and all his work. It should be remembered that the fancier occupies a sphere of usefulness equally as important as that of the utilitarian. Without the former the latter would be quickly in chaos, and the fancier's work in producing and maintaining distinct the many handsome and useful breeds of fowls existent to-day demands praise rather than the reverse, even from the purely utilitarian.

FRED TOOTILL.

MR. PALMER'S article is decidedly practical and full of interest, but I think he has over-estimated the evils that may be expected in the trend for increased size in poultry and somewhat failed to recognise the advantages. To begin with, I do not agree that this demand for increased size has reached a phase which may be rightly termed

a "craze." That there is a tendency in that direction I willingly admit, and in many respects it is one that was greatly needed. A demand for increased size in exhibition and high-class breeding stock is bound to have its effect on the general stock of the country, and if we only take the trouble to consult the leading poulterers in any market town where fowls are sent in from the farms I think we shall find them complain that the very great majority come in not only improperly finished but lacking in size. The majority of consumers like a large fowl as well as a well-fed one, and it does not of necessity follow that increased size means loss in the quality of flesh. Granted that a young Campine may be, as he says, "delicious," is it not possible—aye, even a fact—that a White or Jubilee Orpington, or a cross of the latter with a Faverolle, if killed equally young, will be equally "delicious," and at the same time sufficiently larger to be of a more marketable size? I know a farmer who was at one time a prominent breeder and successful exhibitor of Campines, who gave them up and went in for Jubilee Orpingtons and White Wyandottes chiefly on account of the draft Campine cockerels proving such unmarketable commodities. Since then the so-called craze for increased size has had its effect on Campines till at the present time we find them bred up to very fair weights in some strains with a decided advantage from the table-fowl point of view, and as far as one can gather without any decrease in egg-producing properties. Referring to the milking properties of cows, it is doubtless correct that certain races as a whole may not be as heavy milkers as others, but we can look closer than the individual breed and find certain *strains* of those races that will produce as much milk as the smaller breeds and carry this quality through the strain from generation to generation. So with fowls much the same thing applies. The matter is one greatly dependent on strain and careful breeding for whatever may be the point aimed at. The possibilities of the poultry-breeder are practically unlimited, and it is quite reasonable to assume the probability that in the near future we may find the up-to-date poultry-breeder with a fowl which combines size, quality, and record laying properties. Because in the past it has been necessary to have a small third-rate table-fowl in order to ensure a heavy layer, is that any reason why such should not be overcome by careful breeding, and the two things combined? I think we have already quite sufficient indication of the possibility of this in what has already been achieved in several breeds, and it is no more contrary to Nature than the breeding for an unnaturally heavy flow of cow's milk and many other things that careful breeding and selection have achieved. I do not think it exactly correct to state that the medium-sized breeds are necessarily the moderate layers. The Wyandotte family must, I presume, come within this category, and then how does such a statement compare with the position so frequently occupied by the White Wyandotte?—a breed which may also be fairly said to be, as a rule, the largest of that ubiquitous family, and yet comes out the winner over its confrères in the majority of cases in the laying tests and beats also other smaller breeds. As to Anconas, whether crosses with the Minorca were or were not resorted to in order to produce the modern present-day variety, the question of size does not follow, for the old original Ancona as I

recollect it in the days of its early importations, roughly a quarter of a century ago, when importations were made by Mr. Geffcken and others, was a decidedly larger bird than those we see exhibited to-day and recognised as up-to-date specimens. As for the Black Leghorn, I doubt if there has ever been known any really true Italian type—the black variety was, I believe, originally manufactured in this country, commencing with those produced by Captain Payne when he lived at Knaphill—so that comparison is impossible. Increased size in the male bird may not be conducive to successful breeding if it is only encouraged in the individual, but it should prove no drawback if met by a comparative increase in the other sex. Where increased size is desirable it should be collective and not individual.

With what Mr. Palmer says about the equal value of large and small eggs I cordially agree, but the fact remains that the great bulk of the buying public like a large article for their money, from the child who craves the largest ball or cake, to paterfamilias, who equally prefers the large fowl and the large egg, and breeders must cater to suit the buyer just as they have to in the matter of brown shells, which are in reality no indication of the quality of the contents—and I do not think the up-to-date egg-producers of this country will be content to accept the theory that in order to get large eggs they must be content with hens that only produce one, where those laying smaller ones produce two or three. I think we may depend on the English breeder to follow up his strains till he obtains size and numbers combined, and equally I think he may be depended upon to bring his average new-laid eggs up to the standard of the picked ones from abroad to which Mr. Palmer refers.

It is doubtless possible to carry a craze for size to an extreme just as much as any other desired end may be in like manner spoiled by excess, but at present I contend that the trend for increased size in the show-pen—combined, as it has inevitably been, with a tendency to more utilitarian qualities—has had, and will in the future have still more, an advantageous rather than an adverse influence on the economic qualities of our best breeds of poultry.

JOSEPH PETTIPHER.

[Some further criticisms will be published next month. We shall be pleased to receive letters on the subject from our readers.]

An Appreciation.

Professor James Dryden, the head of the Poultry Department at the Oregon Agricultural College, Cornwallis, U.S.A., and one of the leading poultry authorities in America, writes as follows:

I am pleased to follow month by month in THE ILLUSTRATED POULTRY RECORD the splendid work you are doing for poultry husbandry everywhere. Of all the poultry journals I read, THE ILLUSTRATED POULTRY RECORD is by far the most valuable to me, and I sincerely trust it is meeting with every encouragement.

OSTRICH-FARMING IN AMERICA.

By A. T. JOHNSON.

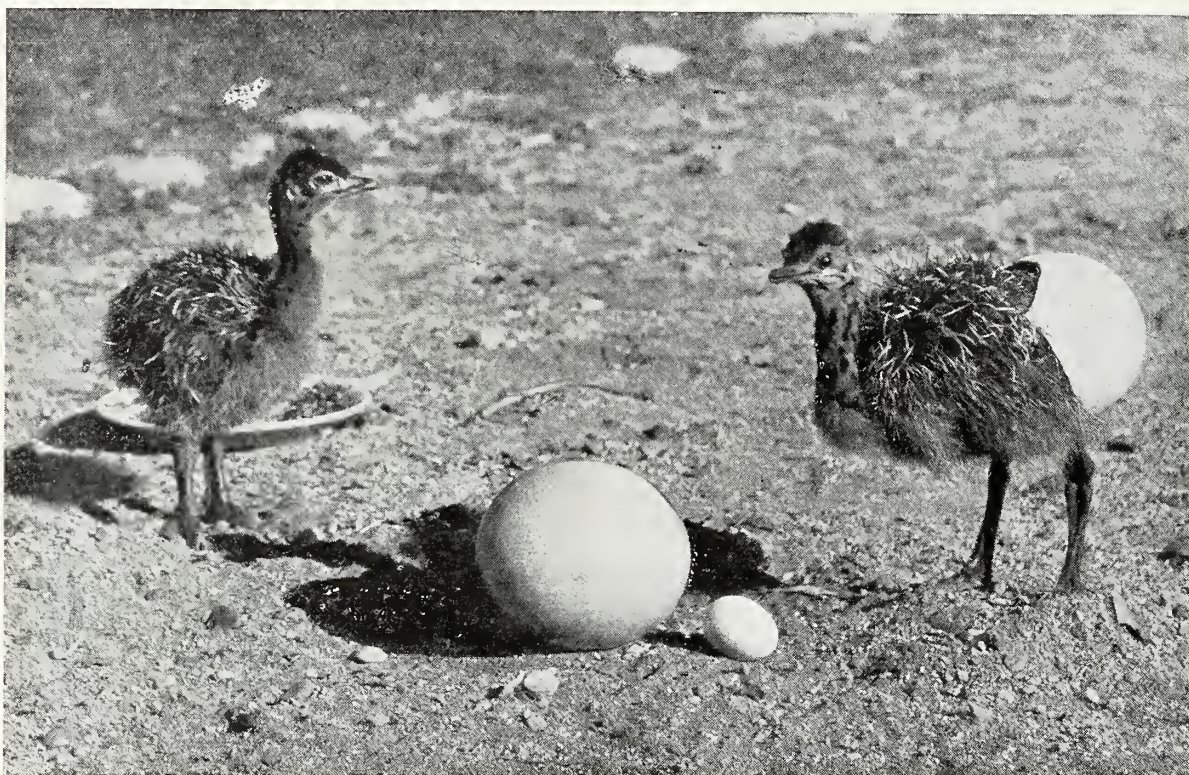
(California, U.S.A.)

PERHAPS some apology should be offered for introducing the subject of ostrich-farming into the pages of a poultry journal. But considering that the ostrich is the largest, and probably most interesting, of the feathered creation, that like our own domestic fowl it has been taken from its native haunts and brought into line with other creatures which minister to the wants of man, I think it may justly claim a share of our attention. Moreover, I hope to be able to give the reader some facts concerning ostrich-farming that will be of practical value to him as a poultry-keeper.

Perhaps there is no article of commerce—certainly none possessing an æsthetic value—that has

and, as a species of “wall fish,” is “farmed,” and thus rendered more than usually luscious, in more than one country in Europe. Other creatures might be added to the list, but the ostrich is quite the most important of them all from every point of view.

There was a time when the rearing of these great birds for their plumes was confined to their native continent, Africa. Now, however, many farms have arisen in the warmer parts of North America. The oldest and first-established of these was started twenty years ago at Pasadena, South California, by Mr. Cawston—an Englishman—to whom I am indebted not only for the excellent photographs which accompany this article, but for many interesting details regarding his stock. At Mr. Cawston's farm may be seen the whole process of plume-production. There the birds are mated, the eggs laid and hatched, the young reared, and



COMPARATIVE SIZES OF AN OSTRICH'S AND A HEN'S EGG. [Copyright.]

endured so long as the ostrich plume. Since the days when Cleopatra sent her hunters into the Nubian deserts to procure the cherished feathers down to the present time the plumes of the ostrich have never been out of fashion. In all civilised societies and in many lands they have been, as they are to-day, “a thing of beauty” and a “joy for ever” to women of all ranks. They have been to kings and courtiers and cavaliers the distinctive mark of nobility and distinction. To the lady of Mile End on holiday in Epping Forest an ostrich plume of startling dye is the one essential contributor to her vanity. Nothing else satisfies the thirst of her aspirations quite so well.

Among the creatures of the ancient world that have been domesticated for commercial objects the ostrich is not alone. The alligator, grim cousin to the dragon of old, is now bred extensively in captivity for the sake of his hide. Even the homely snail has been induced to toe the line of commerce,

the plumes “plucked” and finally turned out as finished articles from the adjoining factory. There are some hundreds of ostriches kept at the Pasadena farm, most of them being youngsters and stock birds, but on a branch establishment on the Jacinto Hills Mr. Cawston has a reserve flock of over a thousand of these gigantic creatures. The climate of Southern California has proved to be a perfect one not only for the general health of the birds, but the soil is exceptionally good for feather-production.

Quite the most interesting and astonishing fact regarding the ostrich, to my mind, is the extraordinary rapidity of its growth. When the youngsters are hatched, or soon after, they are pretty, frowsy little things about the size of a Silkie hen. During the first four days of their existence they fast, if the eating of grit or gravel may be excepted. But having laid in a considerable foundation of that species of *hors d'œuvres* they begin to eat—and eat they do voraciously. But

if they consume in an incredibly short space of time bushels of alfalfa hay, green and chaffed, barley and vegetables, they make amends for their stupendous appetites by growing at an amazing pace. Supposing that these little creatures are, soon after hatching time, one foot in height in May they will be full grown by December! That means to say they shoot upwards at the rate of a foot a month, and in eight or nine months after leaving the egg the birds will be as many feet in height, often weighing nearly 200lb., and their plumes ready for the factory! That phenomenal "hustle" in development is not, I need hardly assure sceptical readers, a special feature that they have imbibed from the American climate! It is a peculiarity of the ostrich wherever it exists, and one, by the way, that is seldom an attribute of any creature that attains a great age, as the ostrich often does. The question, however, may arise as to how far the feeding affects this rate of growth, and to poultry-keepers the subject has a distinct interest. That good and proper feeding accelerates growth it would be idle to deny, but, apart from the fact that the ostrich is naturally a fast grower, there is no doubt but that alfalfa has an enormous influence in the development of the youngsters in captivity. This food, whether eaten in the green state as natural forage, or quite dry in the form of chopped hay, is highly nourishing, as poultry-feeders in America have known for many years. Poultry-keepers in England have not been as ready to make use of it, though the analytical value of clover meal and hay (practically the same thing as alfalfa) has been before our eyes for long enough. Those feeders, however, who have put it to the test know full well

Not only has alfalfa feeding a marked influence upon the growth of the ostrich, but it has increased the prolificacy of the females. The latter may produce anything from thirty to sixty eggs (each weighing from 2½lb. to 3lb.) in the course of a season, individual variability being just as marked a feature with them as it is with laying hens. These eggs are deposited in the nest—a mere hole scraped in the sand by the male bird—at intervals of two or three days and removed as laid to be hatched by incubators. As the climate is warm and dry, and the youngsters develop so fast, they only require a few days' artificial brooding when they are able to take care of themselves. During the breeding season the old birds (they are four years of age before commencing to lay) are exceedingly vicious, and the greatest care must be exercised even by their own attendants in avoiding their fierce forward kick, which is powerful enough to break a man's leg or smash through a piece of 4 by 4-inch timber. During the process of "plucking" the plumes that danger is avoided by hooding the old males with a bag thrown over the head, which renders them perfectly quiet and docile.

The ostrich always mates for life—even in America! They are, after the ecstatic dances and grotesque emotions that accompany the nuptial hours of spring have passed away, practical and unsentimental in their married lives. Even should a lordly sire, with a blow from his terrible foot, slay a displeasing wife in a moment of uncontrollable temper, he accepts the next one that is given him with neither regret for the past nor joy for the future. The "digestion of an ostrich" is proverbial, and domestication seems rather to have



A FLOCK OF OSTRICHES ON MR. CAWSTON'S FARM.

[Copyright.]

its first-rate properties as poultry food, and it is not for me to say more upon the matter here beyond this, that I hope what is written above regarding the use of alfalfa as a *staple diet* (usually fed dry) for ostriches may induce some of those poultry-keepers who are still dubious as to its food-value to give it a trial. The ostrich and the domestic fowl are not so dissimilar in physiological structure as to render the comparison I suggest illogical.

enhanced the power of that function than otherwise, for Mr. Cawston's birds have a distinct partiality for watch-chains, lighted pipes, hat-pins, spectacles, or, in fact, any bright or coloured articles worn by visitors who are unwary enough to approach too near the iron hurdling within which the birds are enclosed. Another remarkable feature in which the ostrich can claim distinction is his swiftness as a runner. He is not only the largest living bird

but the fleetest on foot. If his wings have become entirely rudimentary as organs of flight he has been gifted by nature with remarkable speed. Anyone who has never seen one of these birds, save in the close confinement of a zoological garden, can have no idea of the pace with which they can cover the ground when under more natural conditions. In the beautiful and extensive sub-tropical park at Pasadena, where roses, calla lilies, poinsettias, and other conservatory flowers are abloom in the open at Christmas, and where the ostriches have what practically amounts to a free range, the birds can be seen going at a rate of speed that would easily outstrip the fastest horse, their paces being often more than twenty feet in length. Were it not for this fleetness of foot it is probable that the ostrich would ages ago have followed to extinction its prehistoric progenitors which have become no more than fossil relics of an older world.

The most important and interesting part of ostrich-farming is, after all, the "harvesting" of the plumes. These are taken from all parts of the bodies of both sexes, even the young occasionally yielding up their fluffy plumage in ministration to the demands of commerce and fashion. But the finest of all plumes are those taken from the wings of the oldest males. These, the largest and most beautifully curled feathers of two feet or more in length, and worth their weight in gold, are never a single feather, but made up of several shorter ones. Not only is the shaft of one cleverly fitted into that of the other, but each individual, thread-like plume of the webbing is elongated by the same means, the whole being curled and exquisitely tapered. But it will serve no useful purpose here to enter any further into the art of washing, dyeing, curling, and the numerous other processes of "making up," with which an immense staff of workmen are regularly employed at Mr. Cawston's factory. Indeed, are there not some fanciers who might be tempted to turn such information to a base use? It will suffice to say that the "plucking" (a trade term, for the feathers are always cut off, the stumps being allowed to moult naturally) is carried out every seven or eight months. The birds are never left naked, as some suppose, and there is not the slightest cruelty involved.

AMONG THE BIRDS IN MARCH.

By J. W. HURST.

THE BREEDING STOCK.

We have now reached such an important period in the breeding season that stock birds must receive particular attention—especially in view of the normal seasonable difficulties and their influence upon reproduction. The cold winds that were experienced earlier will have indicated any weakness in the sheltering accommodation, and breeding-pens that are not well placed should be removed or altered in accordance with the reasonable anticipation of more wind from the east; exposure in that direction being very inimical to the well-being of breeding stock and the fertility percentage of their eggs. The behaviour of cocks and cockerels should be carefully noted just now, some being much more influenced by the weather than others, and this applies more particularly to the older birds, who are liable to become inactive in cold weather if unduly

exposed. Where there are no natural wind screens, or the hedges and shaws are insufficient for the purpose, any such available material as faggot wood may be effectively used. To erect such an artificial screen, stakes—supporting a double row of horizontal poles—should be fixed in the desired position, and the faggots packed tightly on end between the two rows of poles, which will hold them in place and thus form a good compact dead hedge.

EARLY GOSLINGS.

To accord with the description early goslings should be hatched before long, and as the early eggs of the stock geese will have been set under hens—three or four, or perhaps five, under each—it is an economical arrangement at hatching time to let one hen look after two batches of goslings, every second hen being thus free to recover condition for other work. Whether this is done or not the coops used must in any case be sufficiently roomy for birds which are relatively large at hatching, and grow rapidly during their early days of rearing. Fortunately, they do not need much brooding, a week or ten days being sufficient, according to the circumstances.

For their first feeding well-soaked biscuit meal, or bread, will suffice, with the addition of well-chopped dandelion leaves. During the first few days they require feeding at frequent intervals, but do not need much food at any one meal. When the birds are about a week old their diet should be changed, and may include Sussex ground oats, middlings, boiled rice, and the dandelion leaves—the food being mixed crumbly.

THE TURKEYS.

The commencement of the laying season is rapidly approaching, and the hen turkeys must be fed with a view to the requirements of egg-production. Whether laying begins at the end of this or the commencement of next month the hens will now be looking for out-of-the-way nesting-places, as they always do some time in advance of the actual start. If allowed a free and varied range they will probably lay away unless prevented or encouraged to do otherwise. The encouragement to lay near home must be of a casual nature, because if the arrangements are too obviously intentional the birds will in most cases become doubly suspicious and the risk of stolen nests proportionately increased. A barrel with some hay inside placed carelessly under the shelter of a secluded hedge, a few faggots placed at a convenient angle against a wall, or a lump of litter in the corner of a disused shed may induce the birds to lay where they are required.

"SETTINGS" AND "DAY-OLD" CHICKENS.

Both buyers and sellers of eggs for hatching and chickens that are newly hatched should make the most of their opportunities during this month, the producers remembering that advertising is all essential to the disposal of such produce. For the producer the combination of the two branches is a convenient form of conducting this business, the incubating requirements of the "day-old" department serving to relieve the "setting" section of any surplus; but—and this is the key to the whole business—most of the orders for "day-old" chickens should be secured well in advance of the successive hatching dates, otherwise the rearing operations may be unduly developed. Hence the necessity for sufficient advertisement.

FANCIERS AND FANCY MATTERS.

By WILLIAM W. BROOMHEAD.

*Death of Mr. Petley L. A. Price—The Great Paris Show—
"Roast Chicken"—Hatching Results—The 1910 Shows
—Yokohama "Points" Cup—Recent Elections—Some
Future Shows.*

DEATH OF MR. PETLEY L. A. PRICE.

Since writing my notes for the February issue of THE ILLUSTRATED POULTRY RECORD news has come to hand of the death, in Salt Spring Island, British Columbia, of Mr. Petley L. A. Price, which sad event occurred at the beginning of this year. It was as hon. secretary of the White Wyandotte Club that the late Mr. Price will be remembered by most fanciers in this country, since he held that post from the inauguration of the club at Tunbridge Wells Show in 1903 until his departure in October, 1908, for British Columbia. The White Wyandotte was always his favourite variety, and he was one of the earliest breeders of it in England. As an exhibitor Mr. Price was very successful, and one generally found his name figuring well up in the lists at the important fixtures of the year. As hon. secretary of the Kent branch of the Poultry Club he did much good work for that body during his residence in the county, while as a member of the headquarters council he rendered great service to the Fancy. As a fancier, Mr. Petley Price was truly one of the best, and he was withal a kindly English gentleman. Many there are who mourn his loss, and not the least of them those of us who knew him in the poultry Fancy.

THE GREAT PARIS SHOW.

At a time of the year when there are very few shows in England some of the most important of the Continental poultry exhibitions are held. Among these this season may be mentioned the twelfth annual International Poultry Exhibition, which took place at the Grand Palais, Paris, last month, under the auspices of the French Aviculture Society and under the patronage of the Minister of Agriculture. At this event, as, indeed, at most of those held on the Continent, classes are provided for breeds which are popular on this side of the English Channel; and as a rule a few exhibitors from England take the trip and generally manage to return with some of the prizes. At the late show I hear that Captain Max de Bathe (of Hartley Court, Reading) won first prizes with a White turkey cockerel, a White hen, a Minorca pullet, and a Buff Orpington drake, and a second prize with a Jubilee Orpington pullet. Another successful exhibitor was Mr. Art. C. Gilbert, of the Swanley Poultry Farm (Wilmington, Kent), whose birds were awarded ten first prizes, the grand prize of honour (for the best foreign bird), and four or five other prizes of honour.

"ROAST CHICKEN."

Writing to me on the 1st ult., Mr. Art. C. Gilbert told me that he had sustained some heavy losses by fire. The show-shed and wash-house at the Swanley Poultry Farm were "burnt to ashes," together with thirty birds that were just ready to go off to the Paris Exhibition and twenty-seven more which were in the shed at the time. The fire started at about 11.30 a.m. on Tuesday, and it was not until the Swanley Fire Brigade had been working on it for some six hours that it was under control. The loss also includes a hay stack of between ten and

a half and twelve tons. Subsequently I heard that the cause of the trouble appears to be that "a spark must have hopped into one of the open baskets in front of the fire, caught the hay in the bottom and travelled gently onwards." Despite the loss, however, Mr. Gilbert lost no time in making up another team and forwarding it to Paris. Since the labels were destroyed, together with the schedule of the event, there were no numbers by which the birds could be penned at the show. However, it says much for the officials that the team was safely staged; and that the birds were up to the mark is beyond doubt, for they won the prizes to which I have referred in the preceding paragraph.

HATCHING RESULTS.

It is perhaps early yet to write of hatching results for 1911, but many chickens for the coming shows are out and about. When at the Poultry Club Council meeting last month, Mr. O. F. Bates informed me that he had a hundred or more January Wyandottes on hand which, even at this young age, show much promise. Mr. W. M. Bell also told me that he had made a start with his Orpingtons, and that although the numbers were few—I think he mentioned well over five score—the birds were doing well, the excellent weather of January giving them a good send-off. Mr. H. Wallis, too, and Mr. John Horn have also a few Langshans and Orpingtons hatched this year, while some small batches of Leghorns are to be seen at Cob Tree, where Mr. G. Tyrwhitt Drake keeps his stud.

THE 1910 SHOWS.

In my brief review of the poultry Fancy in 1910, which appeared at page 210 in last month's ILLUSTRATED POULTRY RECORD, I said that as far as I could gather the shows appeared to have been as numerous as ever. Having just completed some particulars in connection with them, I find that this is not so, at least the minimum was seventeen under the previous year's total. Thus in 1909 I had notes of 785 poultry shows for the British Isles, and in 1910 the total was 768. The difference, however, is practically confined to the events held during August, those for 1909 being 175 and last year 159. It is, however, a satisfactory total for those who consider the strength of the poultry Fancy by the number of shows which takes place each season. For the past six years now the number has been well over seven hundred—well over an average of two shows per diem, Sundays included! No wonder, perhaps, that some people think shows are being overdone.

YOKOHAMA "POINTS" CUP.

I hear from Mr. F. J. S. Chatterton that the result of the winnings of the members of the Yokohama Club in the classes for Yokohamas and Yokohama Bantams for the president's (Mrs. Prideaux) Challenge Trophy for the year 1910 is as follows: First, Mrs. Prideaux, winner of twenty first prizes and thirteen seconds; second, Miss Wilson, five firsts and four seconds; third, Mr. E. H. Hipkins, with four firsts and five seconds.

RECENT ELECTIONS.

I see that Mr. W. W. Dobson has been elected president of the Buff Plymouth Rock Club for the present year, and Mr. A. A. Fleming hon. secretary and treasurer. This latter gentleman also holds similar offices in the Plymouth Rock Club for 1911, while the voting for president of that body

has resulted in both Mr. J. Brandon Smith and Mr. F. A. S. Duxbury securing a tie for top place with eleven each. Mr. John Horn has been returned as president of the Variety Orpington Club, with Mr. A. W. Barrett as hon. secretary and treasurer. Mr. W. Hunter Gandy was returned (unopposed) as president of the Campine Club, and the Rev. E. Lewis-Jones as hon. secretary and treasurer.

SOME FUTURE SHOWS.

The Spring Show of the Royal Northern Agricultural Society is to be held at Kittybrewster, Aberdeen, on the 8th inst. Fifty classes are scheduled for poultry, and the section will be under Poultry Club Rules. The most favoured breed is the Wyandotte with eight classes, but Dorkings, Leghorns, and Orpingtons get four each and ducks six. The cash prizes are ten shillings first and five second, with a third of half a crown where there are eight or more entries in a class. Four of the Poultry Club's Breed Cups (for Leghorns, Orpingtons, Plymouth Rocks, and Wyandottes) are among the specials. I have received an early press copy of the prize-sheet issued by the Bath and West and Southern Counties Society for its annual meeting, which is to take place at Cardiff on May 31 and June 1, 2, 3, and 5. Seventy-one classes are provided for poultry, there being, among others, six each for Orpingtons, Wyandottes, and chickens, and four each for Leghorns, Hamburgs, and Old English Game. The cash prizes are 30s. first, 15s. second, and 10s. third, except in the class for breeding-pens, where the prizes are £5 first, £3 second, and £2 third, the exhibits in this class to consist of a cock and four hens bred in 1909 or 1910, any distinct breed, "mated for breeding"—presumably to breed exhibition specimens. I have also received a copy of the first edition of the prize-sheet for the "Royal"—at Norwich from Monday, June 26, to Friday, June 30. There is an increased classification for poultry at this year's event, the total being 132. No less than twenty classes are offered for Wyandottes, sixteen for Orpingtons, a dozen each for Sussex and Bantams, eight each for Old English Game, Plymouth Rocks, Leghorns, and ducks, and six for Yokohamas. The cash prizes are 30s. first, 20s. second, and 10s. third, and of the specialist clubs supporting the show are the Black Sumatra Game Fowl, the Sussex Poultry, the Malines, and the Campine. The "Royal" this year will not be held under Poultry Club Rules, which, I think, is a pity; but the entries will demonstrate whether it is a wise move or not. Entries close on Wednesday, May 31, with the secretary, Mr. Thomas McRow, 16, Bedford Square, London, W.C. Other important poultry shows already announced, and the dates of which are worth noting, are Darwen, Lancs, on May 20; Birkenhead, Cheshire, on July 12 and 13; and Lancaster on August 16.

Attention is drawn to the fact that the next number of "The Illustrated Poultry Record," published on April 1, will be a special EXPORT NUMBER, and will contain much valuable information concerning the needs of foreign buyers, the best methods of exporting fowls, &c.

SOME HINTS TO AMATEUR FANCIERS.

THE ideal fancier is neither an optimist nor a pessimist but a philosopher, who takes bad luck with good luck as a matter of course, and I can think of no better advice to give an amateur than to be philosophic when disappointments arise. The wise man will regard these disappointments as part of his education, for they will not only inure him to a state of affairs that is inevitable in the poultry Fancy, but they will set him to discover the why and the wherefore of these happenings. As an instance, it is by no means uncommon for an amateur to purchase a bird that has been winning, only to find that in his hands it fails to gain more than a card. The most likely reason is that the bird has passed its prime or is meeting stronger competition, or very likely the amateur is not exhibiting it in the same condition as did its former owner. In any case the amateur must disabuse himself of the idea that a bird that has once won a prize must necessarily be a winner from that time forward. We frequently hear exhibitors complaining that a bird has won first at one show and is only highly commended at the next. "Funny judging," they remark. But there is really nothing funny about it. There may be a score of reasons to explain the discrepancy and in the majority of cases, if the exhibitor attended both shows and knew anything about the points of his breed, he would realise that the bird had less competition to face when he won first prize.

In making a start in breeding and in exhibiting luck plays a very prominent part. I have known an expensive pen, properly mated (?) by a noted breeder, to fail to produce a chicken worth 10s., and on the other hand there are scores of cases where amateurs have made excellent commencements in manners that would, at the least, be considered unorthodox. At Sandy Show, last August, an amateur fancier told me of the way he became an exhibitor of White Wyandottes. He bought several hens from a farm at 3s. 6d. each, mated them with a cock that cost him 12s. 6d., and bred therefrom a number of chickens that won at several shows during the summer, including a special for the best young bird in the show. There must have been some merit about the parents that the vendors did not recognise, but in any case it was a huge slice of luck for this exhibitor, for in ninety-nine cases out of every hundred one might confidently prophesy failure from such a commencement.

However, instances of this kind provide a welcome relief to the many doleful tales of failure, and they serve to encourage fanciers to persevere in the hope that such luck may one day come their way. But they also prove that the expert adviser has a very difficult task in advising beginners how to make a start to the best advantage. Certainly no expert would think of recommending an amateur to buy hens from a farm at 3s. 6d. and mate them with a cock at 12s. 6d., nor would he feel justified in advising a complete novice to invest a large sum of money in breeding stock. My own opinion is that it pays best in the long run to act cautiously in such matters, and to commence with a small breeding-pen mated by a reputable breeder and likely to breed specimens good enough to win at small shows. It is a great mistake for the beginner to fly too high. Let him win at the small shows

before he tackles the big ones, and let him study his breed and learn how to manage his birds before he handles valuable specimens. Incidentally, it is impossible for a fancier to breed high-class specimens before he has learned what to breed for.

It is often remarked that exhibition birds purchased from skilled breeders frequently depreciate in value to a very considerable extent in the hands of amateurs. This is perfectly true, and it is due to the fact that nearly all breeds of poultry suffer from exposure. Buff fowls become mealy, white birds stain to a creamy or yellowish tint, bright coloured specimens fade, and even the darker birds lose the brilliance that is so much to be desired in show birds, whilst white lobes become discoloured and the texture of large single combs becomes rough. It is, in fact, quite impossible to keep an exhibition fowl in good show condition

NOTES FROM ABROAD.

MR. MORESCO'S POULTRY PLANT.

By W. A. KOCK.

A FEW miles from the town of Copenhagen lies the little village of Ordrup by Charlottenlund, where Mr. Moresco, in his large and beautiful garden, has laid out a poultry-farm for pleasure. The photo shows the main poultry-house built of yellow brickstone, and divided into large and well-ventilated sleeping and scratching compartments. There are four compartments in all, one of which is a fattening and another a hatching room. Along the reverse of the house runs a passage from which doors lead into each roosting compartment. As



MR. MORESCO'S BRICK-BUILT SCRATCHING-SHEDS AT ORDRUP, DENMARK.

[Copyright.]

when it is given its liberty in an exposed run, and the amateur who becomes possessed of such a bird must provide proper accommodation for it if he desires to exhibit it successfully.

Everyone knows the small and useful appliances known as cockerel-pens. These provide suitable accommodation for show birds, having a small box for roosting and a tiny run in which the bird has room to scratch, whilst in the evenings or on dull days the inmate can be let out for an hour or two. As an alternative, or in order to economise to some extent, a range of buildings and runs, partitioned off into small compartments, each to accommodate one or two show birds, may be constructed at little cost and in such a way that the birds are protected from sun and rain and at the same time are enabled to take sufficient exercise to keep them in condition.

wood is used beneath as wainscot, and wire-netting for the division between the compartments, the poultryman can look in all of them at once from the passage. From this passage the eggs can be taken from the nests through a door in the wainscot. The scratching-shed is in front of the sleeping-room, and thus the hens need not run out when the weather is bad.

Mr. Moresco is a breeder of White Leghorns and White Wyandottes, Guinea-fowls, Pheasants, and Pea-fowls, and in the small ponds in the garden wild geese and wild ducks have their residence, while in the garden are flying fantails of all colours.

Buttercups.

This is no longer the designation alone of a weed-flower, but of a breed of poultry, one of the latest

American production. As is usually the case, it is said to be the most wonderful bird ever seen, laying "practically all the year, even through the moult." They appear to be largely red in colour, with black hackles, tail and wing flights, and in weight $4\frac{1}{2}$ lb. to $7\frac{1}{2}$ lb., according to sex.

The Russian Trade.

The following are the values of poultry products exported from Russia in the years 1907, 1908, and 1909, from which will be seen the importance of this trade:

	1907.	1908.	1909.
	£	£	£
Eggs	6,233,409	6,412,887	7,278,804
Dead Poultry	373,464	481,689	543,699
Live Geese ...	792,458	791,622	876,915
Feathers & Down	212,940	195,039	17,667
Whites of Eggs	7,488	7,488	7,488
Totals	£7,619,759	£7,888,725	£8,724,573

In the first three items enumerated there has been a steady advance. Omitting Feathers and Down, which show a large decrease, and Whites of Eggs, which are stationary, the increase in Eggs and Poultry in three years is upwards of £1,300,000.

Owens' Farms.

In an interesting description of the Great Owens' Farms, on Martha's Vineyard, in Massachusetts, *Farm Poultry* states that all eggs are hatched by hens, although the chicks are reared in brooders. The main object, however, is production of exhibition stock.

Competitions of Students.

The Boston (Mass.) Show has instituted a novel but commendable feature which is worthy of emulation—namely, classes for students in which competitions take place for judging of fancy and utility poultry, plucking and trussing of chickens. The latter we have known for long on this side, but the former would be a novelty.

Sale of Eggs by Weight.

An attempt made to compel sale of eggs by weight in New York City has failed. The opposition of traders was too powerful.

From Japan.

Mr. H. Ishizaki, of the Imperial Live Stock Breeding Farm, at Tokio, writes that he has arrived safely, and that the large stock of poultry which he purchased in England have reached their destination and are doing well.

Trade With New South Wales.

The *Sydney Mail* of December 14, 1910, says:

The steamer Dorset, which arrived in Sydney during the week, brought a big consignment of poultry from Great Britain. Most of the birds are intended for the Queensland Agricultural College, Gatton. Among them is a trio of Silver-grey Dorkings and a pen of White Leghorns of the kind now winning at English shows. These are of good colour. There was also a pen of Brown Leghorns, while some Black Orpingtons created a favourable impression. Silver Wyandottes were also represented, but, according to an expert, were disappointing. Rhode Island Reds, a most popular breed

in America, where it had its origin, were among the number, while a trio of Scotch Greys, with similar feathers to Plymouth Rocks, have also been obtained. Most of the fowls came from the yards of Mr. A. M. Prain, a member of the Scottish Commission now in Australia.

The same journal records a very large demand for table-poultry in the colony.

Egg Circles in Victoria.

The Government of this Colony have decided to stop trading in eggs, adopted to encourage the Egg Circle Scheme. It has been an expensive experiment. In twelve months no less than £8,463 12s. 4d. has been lost. Reckless buying and too high prices are declared to be the causes.

Buff Minorcas.

It is stated that at the recent Petaluma (California) Show a Buff Minorca was exhibited, guaranteed to have originated in that State.

Laying Competitions in South Africa.

The Department of Agriculture for the South African Union has intimated that it is prepared to contribute pound for pound towards the expenditure for pens required for conducting egg-laying competitions, which will help greatly in the initial cost of equipment. This does not, however, assist so far as the expense of management is concerned, which is always heavy. The Acting Secretary for Agriculture for the Commonwealth says:

The effort which such an undertaking requires would have a far more valuable effect on the country if undertaken privately than if conducted by Government, for the reason that an impetus would be given to societies in different parts of the country to carry out similar tests more expeditiously and thoroughly than could be done at the few Government institutions where facilities for the purpose exist.

Treatment of Diseased Poultry.

Dr. P. T. Woods, in the *American Poultry World*, strongly recommends, and he is an M.D., the open front house treatment for birds affected with rumpy diseases, claiming that fresh air is essential to a cure. That is antagonistic to former ideas, but has much to recommend it in the light of discoveries in Medical Science.

A Remarkable Layer.

In the same journal Dr. Sanborn gives the record of a hen hatched in 1902, which is still living, and in seven years has laid 1,002 eggs. The annual records are: First year 208, second 157, third 120, fourth 136, fifth 139, sixth 128, and seventh 114.

Wisconsin College.

The new poultry plant at the College of Agriculture of Wisconsin is almost complete. Four acres of land divided into runs and a larger range, and the necessary buildings have been provided. Professor J. G. Halpin is in charge, and already 138 of the agricultural students have entered for the poultry course.

Score v. Comparison Judging.

The Pretoria Poultry Club Committee decided in favour of score judging, but the members would not have it, so that comparison methods will still prevail.



BIRD'S-EYE VIEW OF THE BREEDING-PENS.

[Copyright.]

THE KINNEDDAR POULTRY FARM.

THE Scottish Garden of Eden is situated in Fifeshire, in close proximity to the towns of Stirling, Alloa, and Dunfermline. Within this region, adjacent to the village of Saline, is the Kinneddar Poultry Farm. The country surrounding is undulating and well wooded, and though fully 400ft. above sea-level, is a most suitable district for the successful carrying on of a large utility farm.

The history of the formation of the Kinneddar Farm is extremely interesting, and we do not think it will be out of place to refer here to the early years of its being. Dr. Dalziel, the eminent surgeon of Glasgow, some years ago acquired the estate of Kinneddar as a place of relaxation from the exacting duties of his profession. The Mansion House is an ideal home, and the estate, comprising 1,200 acres, affords excellent sport. The house itself contains many interesting relics and associations, for it was here that Sir Walter Scott used to visit his friend Lord Erskine, and a considerable portion of the furniture is closely connected with the novelist and poet. For instance, there is the desk on which Scott wrote the greater part of "Marmion" and "The Lady of the Lake," a present made in 1810 by the author to his friend. This and many other things are to be exhibited in the Glasgow Exhibition this year.

Although full of interest and memories, it was more with the poultry farm that we were concerned at the time of our visit. It is due to Mrs. Dalziel that the poultry farm was established some five or six years ago.

It is not often that a hobby becomes in course of time a profitable occupation, and

yet in this instance it is the case. The farm was established with two objects in view—first, to demonstrate the fact that the keeping of utility fowls can be made profitable, and secondly, to encourage others to undertake

SOME OF MRS. DALZIEL'S WHITE WYANDOTTES.
[Copyright.]

more fully and completely this branch of the agricultural art. It speaks wonders for the

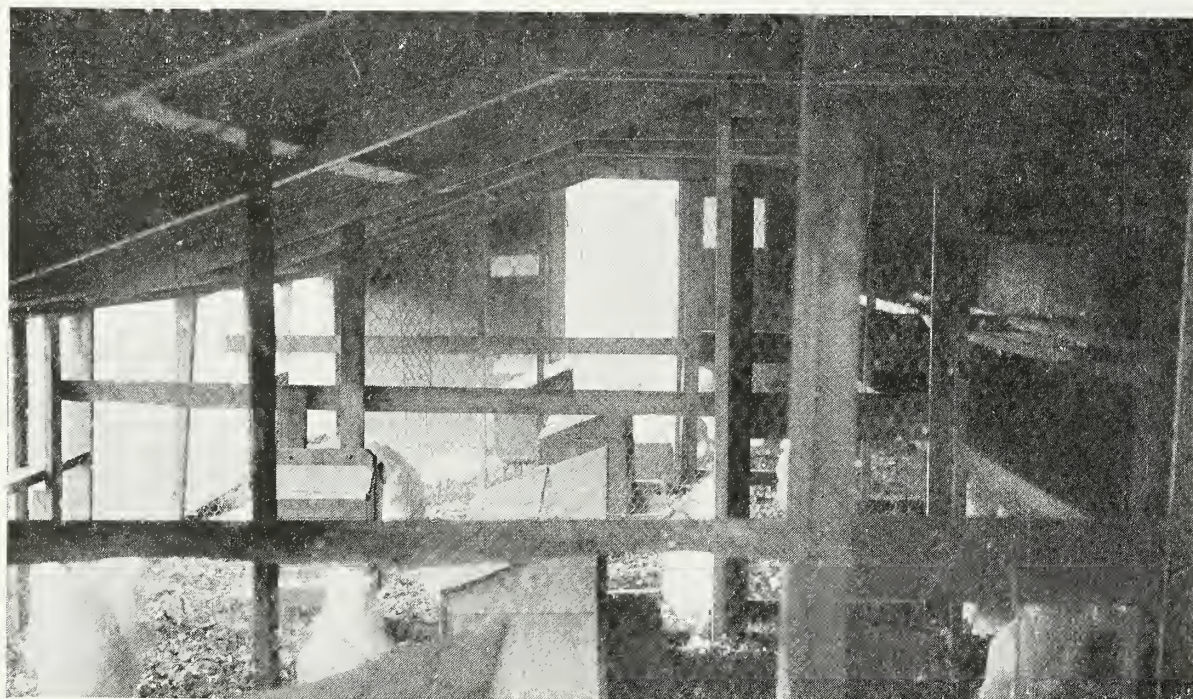
TRADE SUPPLEMENT

propriety when we say that both objects have been realised, and that from a comparatively small beginning a large and successfully conducted farm is now in being. What knowledge has been gained in the past in connection with utility poultry-keeping has been entirely due to the individual efforts of private poultry-keepers, and undoubtedly great credit is due to Mrs. Dalziel for the experiments that have been carried out at Kinneddar.

The farm itself is run entirely upon business lines, and its success is not due to a constant application of capital, for during the past two or three years its development has been brought about from the profit alone. All branches of utility poultry-keeping are followed, with the exception of ducks and geese. Day-old chickens, eggs for hatching, stock birds, eggs and poultry for consumption, appliances and feeding-stuffs are all sold. The

number of well-known winners. Moreover, birds sold off the farm have secured numerous awards at the leading meetings.

The breeding-pens are housed in Tolmin houses, each being 14ft. by 7ft., made usually double and divided, and, though the climate is severe and the temperature changeable, this open-fronted type of house has been proved most beneficial and a thorough success as a means of keeping the inmates in health and very profitable. One instance of this will suffice to prove the truth of this statement. One pen of 23 White Orpingtons laid 125 eggs during October, 260 during November, and 505 during December. A record of this description expresses more forcibly than we can the nature of the stock and the suitability of the conditions under which they are kept. This type of house has become so popular that a carpenter's shop on the farm is kept busy



A FOUR DIVISION TOLMIN HOUSE.
Each Compartment is 14 feet deep and 7 feet wide.

[Copyright.]

flock of turkeys maintained is one of the best we have seen in Scotland.

Mrs. Dalziel believes more in strain than in breed, and she has set herself to work during the past to build up good winter-laying strains of the seventeen breeds that are kept. Anconas, Faverolles, Leghorns, Minorcas, Andalusians, Orpingtons, Rocks, Wyandottes, Scotch Greys, and Rhode Island Reds, with a number of varieties of the majority, comprise the sixty-five breeding-pens. Although we state that Mrs. Dalziel lays more stress on strain than breed, it must not be imagined that type is forgotten, since many of the pens are headed by, and include, a num-

supplying customers with similar appliances to those used at Kinneddar.

It is firmly believed by Mrs. Dalziel that the best way in which to secure good, hardy, heavy-laying stock is to hatch in January or early February, for in this case, after a short moult in November, the pullets come into full lay in December, just at the time when the incubators are commencing their work. One word here with reference to moulting. On the farm there are three large sheds, used in the spring for rearing, and these are employed as moulting-houses in the autumn. After the breeding-pens are broken up and the birds given their liberty they are picked up as soon

as they commence to cast their feathers, and after a month's special treatment under cover they are ready for their winter's work. As a general rule all the two-year-old birds are through this period of inactivity by the end of September. In this way eggs are secured at the most profitable season of the year from pullets and two-year-olds alike.

The sale of day-old chickens forms a large part of the business of the farm, and a well-equipped incubator house and a sitting-hen-shed are employed for this work. The incubator capacity is now 5,000 eggs, having been recently increased from 2,600, and arrangements are made for dealing with 145 broody hens.

shed. The sawdust is obtained from the saw-mill, and costs nothing, and as it is damp it answers the purpose as well as earth, and better, perhaps, since it affords no encouragement for vermin. The feeding of the hens is easily carried out and is done without any waste of time. Each hen is numbered to correspond with her nest, and hence each one is returned to its own place without trouble or confusion.

Those chickens that are not disposed of at a day or week old are reared, and for this purpose there are very good rearing-sheds. Artificial means are adopted, and the brooder is of a special design. It is built on the open-



A BREEDING-PEN OF BARRED PLYMOUTH ROCKS.
The runs are large and roomy, which ensures the purity of the soil.

[Copyright.]

Chickens are hatched by a combination of both methods, for the practice is to fill the machines, and after testing on the seventh day, the fertile eggs, or as many of them as possible, are placed under broody hens for the next twelve days, at which period of the incubation process they are replaced in the machines to hatch off. It has been found that not only is a larger percentage hatched in this way, but the chickens are better and possess higher vitality. We were struck by two points of interest in the sitting-hen-shed—namely, that the nests are made of fine sawdust and hay and that all the hens are liberated and fed together in the same

air system and it is very satisfactory in its result. It is undoubtedly one of the reasons for the health and productiveness of the stock that right from infancy they are reared on fresh-air principles, combined with good feeding and absolute cleanliness. The brooder is constructed with movable fittings, so that it can be converted into a cold brooder at a moment's notice. At the time of our visit there were numberless chickens running about—at least, it appeared so to us, though we were told that every one was numbered, like unto the hairs of our head—and no one could wish for a healthier, livelier-looking lot.

The feeding is special, and is the outcome

TRADE SUPPLEMENT

of a large number of experiments on the part of Mrs. Dalziel. The system adopted is a combination of the dry and wet mash methods. A special chicken pudding is made, consisting of four parts oatmeal, three parts wheat, two parts rice, one part linseed, one part buckwheat, mixed with skim milk and cooked (baked) in the oven. This is given morning and noon, and three feeds of dry chick-feed are given in addition. The pudding is fed until the birds are about six weeks old, when they are put on to the ordinary soft feed. The system can be cheapened somewhat by gradually adding wheat and oats to the dry feed after the third week. Green food enters very largely into the diet of the chickens and is given from the very first. This is not chopped up, but fed ordinarily, for it is held that the exercise derived by the youngsters by tearing and fighting for it is beneficial.

For litter, not only in the brooder-houses, but also in the Tolmin houses, pine needles are used almost exclusively. Bordering the farm there is a pine wood, hence the only cost for litter is in the collection and drying of the needles. In the houses for adult stock leaves are also used as scratching material.

Space does not permit of our entering more fully into many of the details of management and the numerous points of interest, but in conclusion we can mention briefly a few of the additional reasons why success has attended the efforts put forward. America, Denmark, and Australia have all been called upon to supply stock for the farm. Although running the farm economically, Mrs. Dalziel believes that it pays to spend money so as to procure the best. The feeding of the stock birds is carried out scientifically, including such substances as fresh meat, blood, green-bone, and clover hay chaff. Cleanliness is considered as being of the utmost importance, and the grass runs are all swept periodically with a mechanical sweeper. The manure is sold. Everything is done to save labour, even to the extent of fixing patent catches to the gates so that they can be opened by the elbow when the hands are full.

Finally we can only say one thing, and it is that the main reasons why the Kinnedar Poultry Farm is such a profitable undertaking is because Mrs. Dalziel gives all matters connected with its running her personal supervision and because it is run as a business concern.



WHITE ORPINGTONS IN A SCRATCHING-SHED

[Copyright.]

FATTENING FOWLS IN FRANCE.

IN connection with all French rural observations it must be remembered that France is a country of small proprietors and small farmers, and that even where land is rented farms are moderate in their extent. Throughout many of the departments a farm of fifty hectares (120 acres) is regarded as very large, and the more general size would be from ten to twenty hectares. This state of things has had great influence upon the agriculture of the country, for much more attention is given to the smaller products than prevails here. Business is conducted in a less wholesale fashion than we are accustomed to find in Britain, and there remains that old-time custom of producers coming into direct touch with customers which is only possible when markets are depended upon rather than dealers. And it must be conceded that, so far as poultry is concerned, Frenchwomen are wonderfully skilful, though in this respect there are some cleverer than others, as will be the case everywhere. These differences will always be found, and we have had offered as bad butter in France as is to be met with in not a few ordinary English farmhouses, and that is saying a good deal, though the average quality of production is decidedly higher than with us. But it must fairly be acknowledged that, so far as poultry is concerned, the general run of French farmers' wives are enormously in advance of those to be met with at home. We may hope, however, that with the spread of technical education throughout our rural districts, more especially if the younger folk avail themselves of the opportunities afforded them in this direction, and the realisation of the fact that newer and improved methods may be adopted with advantage, we shall see a vast change within a few years. The signs thereof are evident to the discerning eye.

FATTENING IN GENERAL.

Although the methods of fattening adopted in France vary considerably, yet as a rule one main idea appears to be prominent—namely, that the birds shall be kept warm, in semi-darkness, and be fed on flesh-forming foods. Other points are largely matters of detail, resolved by immediate circumstances. In some places one plan is followed, in another a different custom is adopted, but the great fact to be made prominent is that the fattening of table-poultry is not confined to a few counties, but is distributed all over the country. Of course, certain departments have obtained a greater prominence in this respect than others, notably Normandy and the Departments of Saône-et-Loire and Ain, but the fattening of table-poultry is spread over a much wider area than in our own land. We cannot visit any of the towns which are scattered through the Departments of France without seeing the vast amount of produce brought into market by farmers and their wives. We have visited the market of Louhans (Saône-et-Loire) when there were upwards of one thousand people standing with produce of one kind and another. True, it was a special occasion, being about ten days prior to Christmas, and the market was consequently much larger than usual, upwards of 10,000 fowls being offered for sale, but at ordinary periods the same state of things prevails to a proportionate extent.

NOT A SEPARATE INDUSTRY.

It has already been shown that fattening in this

country is almost entirely a separate industry, the birds being reared by farmers and cottagers, and sold to higglers, who scour the countryside on behalf of the fatteners. To some extent the same plan is adopted in France, though it is by no means so universal. In the districts of La Bresse, La Flèche, and Le Mans, we have visited establishments where this system is followed, though in only one case on the same scale as carried out by Mr. Oliver at Heathfield in Sussex, for he, during the season, markets 2,000 chickens per week. Frenchwomen, especially in the districts named above, but elsewhere to a lesser extent, understand the fattening of poultry, and our observations show that the finest specimens are produced by those who do not market more than 50 to 500 per annum, the entire work of hatching, rearing, fattening, killing, and shaping taking place on the same farm. When this is so they are taken dead into market and there sold, either to dealers or consumers, the former purchasing for the Paris and other great markets. It will be seen that where this plan is adopted the profits of middlemen are reduced to the minimum, and whatever benefits accrue from the fattening system are retained by the producer, who, almost without exception, grows the food he gives to the fowls from first to last. To do this, however, needs skill in fattening, and that must be conceded to farmers' wives in the poultry districts. For first-class capons and poulardes fifteen to twenty francs is easily obtained, and we have seen the higher figure paid both at Bourg (Ain) and Le Mans (La Sarthe).

IN THE BRESSE DISTRICT.

Whilst it may be true that some dealers lay themselves out for the production of the best specimens—and as an instance of this we have visited at Le Mans an establishment turning out about 2,500 per annum, some of which are sent as far as Russia, and all realise high prices, the British Consul there informing us that he could buy a really well-fatted bird for less than 25 francs—it is evident that the more moderate-priced fowls are largely produced in this way. Live birds are bought in the various markets of the district, some in lean condition, and are fed up for about three weeks in cages holding about half a dozen, not very dissimilar to those found in Sussex, but more generally are half-fatted, the final process only needing about a week. In the Bresse district we have inspected several of these places, at the largest of which are marketed from 2,000 to 4,000 per week, the greater number from October to February, all of which are sent to Nice, Mentone, and the Riviera. But, it must be noted, they do not attempt to cater for the higher branches of the trade, as the prices range from four to eight francs per bird wholesale, according to size and quality. For live specimens prices vary from three to five francs, the rate being determined by the amount of flesh already carried. Of course, these figures would not apply to capons or poulardes, but it is seldom that either one or the other are offered for sale alive, and when that is the case they are generally of a secondary quality.

(The above notes are extracted from "Poultry Fattening," by Edward Brown, F.L.S., the new edition of which, largely re-written and brought up to date, has recently been published. Price 1s. 2d., post free, from this office.)

YORKSHIRE NOTES.

By FRED. W. PARTON.

POULTRY lectures continue to excite great interest in all parts of Yorkshire, and particularly has this been the case during the last few weeks at Norland, a small village two miles from Sowerby Bridge, and at Cullingworth, in the Harden Valley, near to Keighley. At the former centre the average attendance for a course of five lectures was two hundred, while at the latter village the average was one hundred and seventy. The audiences were comprised principally of fanciers, who, as a rule, are under the impression that poultry regarded from the utilitarian standpoint is of very little service to them, since their objects are different to those of the man who places economic characteristics before exhibition points.

This, however, has not proved to be the case in these two West Riding villages. The greatest



[Copyright.]

A WHITE WYANDOTTE BELONGING TO MR. GREENWOOD

possible interest was evinced, and a couple of days spent in and around Cullingworth revealed some astonishing facts. Visits were paid alike to the fancier, to the back-yard poultry-keeper, and to the farmer. The farms mostly comprise grazing land, and poultry are very extensively reared. One farmer had during the present winter never sold less than thirty-three shillings' worth of eggs per week, whilst many others ran him pretty closely, so evidently the scarcity of eggs, so largely complained of, has escaped this district. The large number of fowls to be seen is very surprising.

They are to be seen everywhere, even in some of the most unlikely places: on the banks of the railway, by the roadsides; while so far as the number of garden plots devoted to poultry are concerned, their name is legion. It is very doubtful whether in any other part of England so many fowls exist on the same area of land. The back-yarder and small-garden man usually keeps his birds in such an unsightly state that it is anything but attractive. In the districts in question, however, this is not the case, the greater number of the houses being very respectable in appearance, with the arrangement of runs and shelter on excellent lines. Of course, here and there the inevitable bacon-box is to be seen, but these are the exception.

I visited the poultry-yard of Mr. Percy Greenwood, whose speciality is that popular breed the White Wyandotte. He started showing a few years ago, and his maiden effort was rewarded with a third prize, which so encouraged him that he stuck to his favourite breed, and made such rapid strides in the improvement of his stock that he won the White Wyandotte Club Cup in 1906, as well as a cup for the best bird in the show.

Black and White Leghorns, Anconas, and White Wyandottes are chiefly in evidence in and around Cullingworth, although there are few breeds that are not represented. This is not quite the district where one would expect to see ducks reared to any extent, yet some of the finest Indian Runners in England can claim Cullingworth as their place of birth. Mr. Taylor, whose Runners are so well known, lives in this district, and has done much to popularise the variety.

A wonderful amount of enthusiasm is possessed by the artisan class of poultry-keeper, and his knowledge is extensive, while the amount of energy and intelligence devoted to his hobby are an object-lesson to many farmers, whose apathy is proverbial.

Chickens are very plentiful this season, and up to the present time the weather has been remarkably favourable. Chickens have thus got a start that will enable them to withstand the severity which we may have in March.

Table-Poultry in Australia.

A writer in the *Sydney Mail* calls attention to the poor quality of chickens on the markets of that Colony, mainly as a result of the popularity of the Leghorn, which is so largely kept. He points out that one reason why the Buff Orpington has lost favour is that it has not come out well in laying competitions. Excessive layers cannot be expected to produce flesh. He adds: "There is very little value for the table in much of the poultry that is now sold in Sydney. A general improvement must result in better prices and more satisfaction."

American Laying Competition.

Laying contests have been long in materialising in the United States, but at last a commencement has been made. A contest for twelve months started at Vineland, New Jersey, on February 1.

A Christmas Dinner Assured.

An American exchange says that Samuel Insull, President of the Commonwealth Edison Company of Chicago, went to England to eat Christmas dinner with his father and mother in London. And one of the most important pieces of baggage he took contained two American turkeys for the dinner.

POULTRY RECIPES.

DUCKLINGS AND SPRING CHICKENS.

ROAST DUCKLINGS.—Prepare the birds in the usual way and stuff them with a forcemeat of sage and onions, or, if preferred, with the following preparation: Four ounces of breadcrumbs, three ounces of butter, a teaspoonful of grated lemon-rind, a tablespoonful of chopped parsley, three tablespoonfuls of parboiled onion finely minced, and a seasoning to taste of salt and pepper; add one or two beaten eggs, and mix well. Cook the birds in a quick oven, or before a clear, hot fire, in either case basting them well and frequently. When done enough drain the birds carefully, and if they are to be served hot place them on a bed of well-seasoned fresh watercress; garnish the edge of the dish with more watercress and fancifully-cut slices of fresh lemon. Send to table very hot, accompanied by some pleasantly-flavoured brown gravy. If, however, the ducklings are to be served cold, they should be accompanied by a well-mixed and pleasantly-seasoned green salad, and a compote of oranges prepared as follows: Take three or four oranges and carefully remove the skin and every particle of the white pith or inner skin; then divide the fruit into small sections and lay these in a glass or china dish, dust them over with fine white sugar, and sprinkle with lemon-juice; toss well together and serve.

BRAISED DUCKLINGS.—When the birds are properly prepared fill them with potato stuffing, or any other forcemeat if preferred, and when firmly trussed lay them, breast downwards, in a stewpan the bottom of which has been covered with a thick layer of mixed vegetables cut up into small pieces and seasoned with salt, pepper, and mixed powdered herbs; moisten with water or stock, cover very closely, and braise gently until done enough; then take up the birds, place them on their dish, and cover them entirely with onion rings which have been fried a dainty brown and well drained, or, if preferred, with brown onion sauce. Garnish the edge of the dish with parsley and potatoes which have been peeled, cut in quarters, and fried a nice colour in boiling fat. Serve very hot with some pleasantly-flavoured brown gravy in a gravy boat.

STEWED DUCKLINGS WITH GREEN PEAS.—Cut up the birds into joints or quarters and fry these for a few minutes over a quick fire, just to lightly brown the outside; drain thoroughly from the fat and place the ducklings into a stewpan with a quart of fresh green peas—measured after being shelled—a bunch of savoury herbs, a seasoning of salt and pepper, two tablespoonfuls of minced onion, an ounce of fresh butter, and about half a pint of stock or water; cover the stewpan closely and stew as gently as possible until the meat is quite tender and the peas soft; then arrange the ducklings neatly on a hot dish, form the peas into a border round about, and serve very hot. If liked some good sauce or gravy may be served as an accompaniment, but the dish is extremely dainty and appetising without either.

BROILED CHICKEN.—To broil anything satisfactorily requires great care and constant attention, but when nicely done it amply repays for the little extra trouble involved. In this instance, prepare the bird in the usual way, then cut it down the back and flatten it well; put it to soak for an hour in a marinade of oil, vinegar, or lemon juice, some thinly

sliced onion, and a little chopped parsley, after which drain it carefully, brush it over with beaten egg, and cover with a firm coating of fine breadcrumbs. When ready, broil the chicken over a moderately hot, clear fire until sufficiently cooked and just delicately browned, then place it on a hot dish upon which has been laid a bed of well-seasoned crisp watercress; garnish round the edge of the dish with slices of fresh lemon and small ripe tomatoes arranged alternately, and serve at once accompanied by some creamy brown sauce flavoured according to taste. If preferred green peas, stewed mushrooms, creamed cabbage, or any other skilfully prepared vegetable may be used instead of the watercress.

CHICKEN SALAD.—Cut up the remains of cold roast or boiled chicken into Julienne shreds and season these pleasantly with salt, pepper, and lemon-juice; cover them over in a cool place for an hour or two before being required. Have ready some small ripe tomatoes, a few heads of fresh lettuce, a bunch of watercress, a few sticks of very tender crisp celery, and some hard-boiled eggs. Cut the tomatoes in quarters, tear the lettuce into shreds, divide the watercress into tiny sprigs; roughly chop the celery, and cut the eggs in quarters. When the salad is required mix the vegetables well and place a layer of them in the salad bowl; next put in the chicken, then the remainder of the vegetables. Pour over the whole some good dressing, and mix the salad well; pour over a little more of the dressing, ornament the surface with a tasteful arrangement of bright red, boiled beetroot, and the hard-boiled eggs cut in quarters; sprinkle over all a little finely-chopped fresh parsley and serve.

THE PLACE OF POULTRY INSTRUCTION IN RURAL EDUCATION.

IN the communication by Sir Robert Morant, K.C.B., Secretary of the Board of Education, entitled "Memorandum on the Principles and Methods of Rural Education," upon which we comment in the Diary of the Month, poultry-keeping occupies a prominent place. The following are some of the suggestions made:

Chapter I.—County Staffs and Agricultural Institutes. (1) "The establishment of schools of rural industry, the so-called Farm Schools, the aim of which is to provide instruction on a lower plane than that of an agricultural college, for young men and women of sixteen and upwards, in the various subjects of rural economy, especially . . . poultry-keeping," &c.; (2) that each county shall have a permanent expert staff to undertake the following branches of work: (a) Visiting poultry-yards in an advisory capacity, (b) organising poultry-rearing demonstrations on selected farms or at selected village schools, with suitable breeds of good strain, (c) judging in or arranging for poultry-yard competitions for students, (d) arranging and taking part in summer courses of instruction in practical poultry-keeping, held for school teachers at Farm Schools, and in all directions where necessary. It is also suggested that at each Farm School there shall be a poultry-breeding and rearing station.

Chapter II.—Rural Elementary Schools. In these it is suggested that such education should have a distinct bias on the side of rural life, by the arithmetic class teaching prices of corn, eggs, &c.,

and the productiveness of various breeds of fowls, together with the cost of appliances. In some cases the schoolmaster would be encouraged to keep fowls. It is pointed out, however, that when poultry-keeping is taught there should not merely be demonstrations by the teacher. "The children should take a share in all ordinary operations that they may be enabled to put the teaching into practice in after-school life. Moreover, they should learn something about the varieties best suited to local conditions, to recognise the pests and diseases which attack their stock and how to deal with them; and also the best ways of producing their products— . . . fowls and eggs for the market."

Chapter V.—Farm Schools. These are to have in all cases properly equipped poultry plants. Courses in poultry-keeping with practical work are suggested, with provision for special lesson series, say in fattening, &c. The syllabus proposed is: "Work in poultry-yard in breeding for general and special purposes, hatching, rearing, feeding and fattening, plucking and trussing, and in packing of eggs. Class-room instruction in principles of poultry-keeping on farms; diseases of poultry and remedial treatment, and book-keeping for the poultry-yard."

Chapter VII.—Scholarships to Agricultural Colleges are recommended for advanced students.

Chapter VIII.—The Supply of Teachers. For this purpose the Farm School is to be used both for summer courses and Saturday classes, for men and women, in poultry-keeping, which must be both in the poultry-yard and science workroom.

Chapter IX.—Advisory Work. Great stress is laid upon this branch, which should be by interviews and correspondence, visits to poultry-yards, investigations as required, demonstrations at shows, field meetings and excursions, and poultry-yard competitions. In respect to poultry demonstrations, the memorandum says: "The poultry equipment at the Institute should be adapted for demonstrations designed to indicate the most suitable breeds and for the rearing of birds of good strain, trap-nests being used for ascertaining laying qualities. Flocks of poultry thus reared, it is suggested, should be established at selected rural schools, a poultry-house scratched of the most suitable type being provided. At the schools the flocks should be managed under conditions laid down by the county instructor, and the sittings of eggs distributed to small holders and cottagers at specified prices. The flocks will thus serve for the practical instruction of day and evening school pupils, as well as for demonstration purposes, while the whole scheme should be almost self-supporting."

MARKETS AND MARKETING.

Week Ending January 28.

The markets were quiet, supply and demand being pretty equal. Pheasants were rather scarce, and consequently prices ranged fairly high, but in all other kinds of poultry produce prices were very level. New-laid eggs were rather more plentiful, but a scarcity was reported from some of the provincial towns. The value of foreign eggs remained very high indeed; French eggs found a ready sale at 11s. 3d. to 12s. a long hundred, while Russian eggs were in demand at 8s. to 9s. 3d.

Week Ending February 4.

The markets were again quiet, and there was very little change in values. New-laid eggs, being rather more plentiful, realised a slightly lower figure than the preceding week. There was a pretty good supply of foreign poultry, and chickens from Russia sold readily at 1s. 9d. to 2s. 6d. each; there was also a good supply of Austrian turkeys, and these realised from 7½d. to 10d. per lb.

Week Ending February 11.

There was a slight revival in the poultry trade, owing to the fact that there was no slackening in demand, while supplies were rather shorter. Ducks and geese, curiously, were mostly in demand, and made very good prices. There was practically no alteration in the value of new-laid eggs, prices remaining very firm. Foreign eggs remained very high in value; as a matter of fact, we do not remember them being so high for some years. As

the table shows, French eggs made up to 13s. per long hundred, while even Russian eggs found a ready sale at 8s. 3d. to 9s. 6d.

Week Ending February 18.

After the slight spurt during the previous week the market resumed its normal course, and on the whole was rather dull. The demand for ducks and geese remained fairly good. New-laid eggs, though by no means plentiful, were rather more in evidence.

THE CONDEMNED TURKEYS.

ONE of the risks of overseas trade in dead poultry is indicated by the report of Dr. Collingridge, Medical Officer of Health for the City of London. In December no fewer than 28,000 turkeys, mainly from Italy, were condemned, as they were unfit for food. The total weight was 126 tons 7cwt. 3qr. 22lb., and the sale value was more than £10,000, which will prove a serious loss to shippers or importers, whichever may be declared responsible owners. It is suggested that these birds had been killed during warm weather and packed before the natural heat had escaped, doubtless aggravated by the temperature during the time of transshipment. Probably the use of refrigerator cars would so increase the cost of transit that the trade would be unprofitable. It is a serious business, and will doubtless affect supplies from Italy next Christmas.

TABLE OF PRICES REALISED FOR HOME, COLONIAL, AND FOREIGN POULTRY, GAME, AND EGGS FOR THE FOUR WEEKS ENDING FEBRUARY 18, 1911.

ENGLISH POULTRY—LONDON MARKETS.					FOREIGN POULTRY—LONDON MARKETS.					
DESCRIPTION.	1st Week.		2nd Week.		3rd Week.		4th Week.		PRICES REALISED DURING THE MONTH.	
	Each.		Each.		Each.		Each.			
Surrey Chickens	2/9	to 5/0	3/6	to 4/6	3/6	to 4/6	3/3	to 4/6	COUNTRIES OF ORIGIN. Russia Belgium France United States of America Austria Hungary Australia	
Sussex "	2/9	" 5/0	3/6	" 4/6	3/6	" 4/6	3/3	" 4/6		
Yorkshire "	2/3	" 4/0	2/6	" 3/6	2/6	" 3/6	2/6	" 3/3		
Boston "	2/3	" 4/0	2/6	" 3/6	2/6	" 3/6	2/6	" 3/3		
Essex "	2/3	" 4/0	2/3	" 3/3	2/3	" 3/6	2/6	" 3/0		
Capons	—	—	—	—	4/0	" 5/6	5/6	" 7/0		
Irish Chickens	2/0	" 3/6	2/0	" 2/6	2/0	" 2/9	2/0	" 3/0		
Live Hens.....	2/0	" 2/9	2/0	" 2/9	1/9	" 2/6	2/0	" 2/9		
Aylesbury Ducklings..	—	—	3/6	" 5/6	4/6	" 6/0	4/0	" 6/0		
Ducks	3/0	" 4/0	3/0	" 4/0	3/6	" 4/6	3/0	" 4/0		
Goslings	—	—	—	—	—	—	6/0	" 7/6		
Turkeys, English.....	0/9	" 1/0	0/9	" 1/0	0/10,, 1/0	0/8	" 0/10	COUNTRIES OF ORIGIN. Russia Austria-Hungary France United States of America Other Countries Totals		
" Irish	0/10,, 1/0	0/9	" 1/0	0/11,, 1/0	0/9	" 1/0	0/9		" 1/0	
ENGLISH GAME—LONDON MARKETS.					FOREIGN GAME.					
DESCRIPTION.	Each.	Each.	Each.	Each.	Price Each During Month.	COUNTRIES OF ORIGIN.			DECLARED VALUES.	
Grouse	—	—	—	—	—	Russia			Poultry.	
Partridges.....	2/6	to 2/9	2/3	to 2/9	1/3	Austria-Hungary			£5,591	
Pheasants	2/6	" 2/9	3/0	" 3/0	0/10 to 1/0	France			£80,440	
Black Game	1/0	" 1/4	1/2	to 1/4	3/0 " 4/0	United States of America			£16,770	
Hares	2/0	" 3/0	2/6	" 3/0	1/0 " 1/4	Other Countries			£34	
Rabbits, Tame	1/3	" 2/6	1/3	" 2/6	2/0 " 2/6	Totals			£2,791	
" Wild	0/6	" 1/0	0/6	" 1/0	0/7 1/2 " 0/8 1/2	Russia			£9,287	
Pigeons, Tame	—	—	1/3	" 1/9	1/0 " 1/3	Austria-Hungary			£154,702	
" Wild	—	—	—	—	—	France			—	
Wild Duck	2/3	" 2/9	2/3	" 2/9	—	United States of America			—	
Woodcock	2/0	" 2/9	2/0	" 2/9	—	Other Countries			—	
Sniipe.....	1/0	" 1/6	1/0	" 1/6	0/10,, 1/3	Totals			—	
Plover	1/0	" 1/3	1/0	" 1/3	1/0 " 1/3	Russia			—	
ENGLISH EGGS.					FOREIGN EGGS.					
MARKETS.	Per 120.	Per 120.	Per 120.	Per 120.	DESCRIPTION.	1st Week.	2nd Week.	3rd Week.	4th Week.	
LONDON	12/6	to 14/0	11/0	to 12/6	Irish Eggs	10/6	to 12/0	10/6	to 13/0	
Provinces.....	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-	Eggs per 1/-	French ...	11/3	to 12/0	11/3	to 13/0	
MANCHESTER ...	8 to 9	7 to 8	7 to 8	7 to 8	Danish ...	10/9	" 13/0	10/9	" 13/0	
BRISTOL	1/6	1/4	1/4	1/3	Italian ...	10/6	" 11/6	10/6	" 11/6	
	per doz.	per doz.	per doz.	per doz.	Au trian... ..	8/6	" 10/3	8/6	" 10/3	
					Russian ...	8/0	" 9/3	8/0	" 9/6	
IMPORTS OF POULTRY AND GAME.					IMPORTS OF EGGS.					
MONTH ENDING JANUARY 31, 1911.					MONTH ENDING JAN. 31, 1911.					
COUNTRIES OF ORIGIN.					COUNTRIES OF ORIGIN.					
Russia					Russia					
Denmark					Denmark					
Germany					Germany					
Netherlands					Netherlands					
France					France					
Italy					Italy					
Austria-Hungary					Austria-Hungary					
Other Countries					Other Countries					
Totals.....					Totals.....					
Declared Values.					Declared Values.					
£106,109					£106,109					
£100,103					£100,103					
£12,211					£12,211					
£21,070					£21,070					
£17,103					£17,103					
£23,367					£23,367					
£72,491					£72,491					
£119,005					£119,005					
£661,329					£661,329					

ANSWERS TO CORRESPONDENTS.

Parasitic Diseases.

I have under observation between 450 and 500 chickens, mostly hens and pullets, and these are not laying at all well. One or two have died from various causes, but the last three I examined were in fairly good condition, but under the skin were several—or, rather, a good many—nodules rather similar to tubercles. These I took to be Hydatids of gapeworm. Whether I was right or wrong, I do not know. In one in which I examined the intestine I found a worm nearly one inch long. What I should like to know is, would the presence of these parasitic worms (if they are such) be sufficient cause for the egg average to come down very low and also cause death? How can the presence of these worms be detected in the living fowl, and what can be done to cure them and cleanse the ground. The birds have two large farms to roam about. Cows, horses, and a few pigs are kept, but no other poultry. The soil is rather cold, and no true-bred fowls are kept.—“Avis” (Loughton).

Send us a bird with the nodules, that we may ascertain which of many things of the kind they may be. The gapeworm we know can be reproduced in the air passages, and that those jointed-looking specimens are really pairs, male and female attached; the short-looking arm being the much smaller male worm. That they are also reproduced in the soil is beyond question. We do not think it possible that the nodules you refer to can be cysts of parasites of this class.—H. Leeney.

A Poser.

I have a flock of about forty-five hens of mixed breeds, but Buff Orpington blood predominating, and I have got hardly any eggs this year—not more than an average of about twenty-five per bird. They have a free run and are well fed. I shall be much obliged if you will kindly tell me why my hens are not laying better.—W. H. F. (Marden).

It is quite impossible to help you unless you furnish us with full particulars as to the conditions under which your fowls are kept, your method of feeding, and management generally. We are inclined to think that your birds are much too old.

Eggs for Hatching.

Please advise me as to the best method of keeping eggs for incubation.—P. W. S. (Cirencester).

Eggs intended for this purpose should be kept in a cool place where the temperature is as nearly as possible 50 deg. They may be put in a rack made for the purpose or in an ordinary basket. If they have to be kept any great length of time they should be placed in a box of bran. It is really immaterial how the eggs are placed, provided that they are turned every other day, so as to prevent the contents adhering to the shell membrane.

Home-Made Appliances.

Do you think I could make a satisfactory brooder heated with a hurricane lamp in the middle? I enclose a rough sketch of my idea, and shall be glad of your opinion as to its practicability.—M. S. (Tredfound).

Your sketch shows some ingenuity, but you would do much better to consult the advertisements of the appliance makers. A considerable experience of home-made and factory-made appliances has taught the wisdom and economy of buying these things from a good maker. The fatal defect of your idea is that it does not sufficiently provide for the carrying off of the lamp fumes. Good brooders are now so comparatively cheap that it does not pay to make them and take unnecessary risks.

Turkeys on Restricted Area.

Would about two acres of grass land be large enough to carry turkeys, and if so, how many could I stock for breeding?—G. O. G. (Finchley).

Two acres of grass land, if suitably situated, drained, and not too heavy as regards the character of the soil, would certainly be capable of carrying a limited number of turkeys—a cock and perhaps as many as four hens—but the profitableness of the enterprise is much more uncertain. To produce a healthy and sufficiently profitable progeny, turkeys really need the run of a wide range of grass, arable, and woodland; although with exceptional management I have known breeding and rearing to be carried on year after year in relatively narrow quarters. Nevertheless methods that have been found possible in some circumstances are not always advisable for general adoption, and I certainly cannot recommend you to take up turkey-breeding as a serious occupation upon two acres.

Short Replies.

M. G. (Purley): About 720.

S. R. G. T. (Earley): The first week in October.

G. T. S. (Matlock): See article in the month's issue.

H. W. T. (Woodbridge): We cannot help you in the matter.

A NOTABLE YEAR-BOOK.

THE *Feathered World* is to be very heartily congratulated on its second Year-Book, which has just been published. Certainly we have never seen a better shillingworth. There are no fewer than 635 pages, of which nearly 500 contain information of value to the poultry and pigeon fancier. Several new features are added to this volume which increase its interest and value. Among these may be mentioned “Helpful Hints”; articles on poultry-keeping in different parts of the world by well-known authorities; and special chapters dealing with the utility side of the question and with the troubles and anxieties which perplex the beginner. A remarkably good series of articles is included on the breeds, all of which are written by experts in their particular variety.

A HINT TO ADVERTISERS.

One step won't take you very far, you've got to keep on walking,
One word won't tell folks who you are, you've got to keep on talking,
One inch won't make you very tall, you've got to keep on growing,
One little ad. won't do it all, you've got to KEEP 'EM GOING.